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CRISIS OF SURVIVAL



THE ECOLOGICAL PROBLEM IN INDIA
AND ITS CONSEQUENCES

Yvon Ambroise

NATURE, TECHNOLOGY AND THE NEW SOCIETY

Bede Griffiths

LIBERATION ETHICS OF ECOLOGY

S. Arokiasamy

ECOLOGY AND CULTURE

M. Amaladoss

NATURE AND HUMAN SURVIVAL

Felix Wilfred

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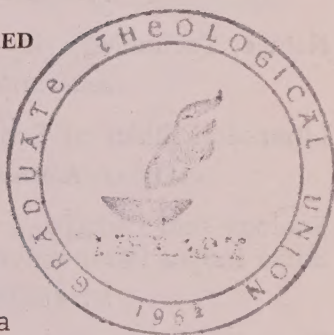
JEEVADHARA

The Human Problem

CRISIS OF SURVIVAL

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TO THE FOND MEMORY OF
THOMAS VELLILAMTHADAM

(08.12.1941 - 22.11.1987)

WHO WAS

ONE OF OUR BEST FRIENDS AND COLLABORATORS

AND FOR MANY YEARS

EDITOR

OF THE JANUARY ISSUE OF JEEVADHARA

THE PRESENT NUMBER

IS DEDICATED

WITH LOVE AND GRATITUDE

General Editor

Editorial

Ecology as the etymology of the term indicates — *oikos* + *logos* — is a discourse about our home, this earth. It is a question concerning what we make of this earth — a livable one, or transform it into a gas chamber inviting death upon all flesh and every sentient. This *logos* on our home is today intimately connected with another discourse about our home — economics. Economics — *oikos* + *nomikos* — concerns the management of the household. The question is how we regulate the riches of this home, the products of this nature. Do we allow them to be appropriated by a few, leaving our poor brothers and sisters hungry and in dire need? Ecology is then a human problem; it bears upon our ethical responsibilities vis à vis the present society and its developments.

Questions such as the meaning of technology and science, the vision of a new society toward which we should move, the relationship between nature, the 'given' and culture which Man creates by his freedom — all these form part of our theologizing about ecology. The current issue of *Jeevadhara* reflects on all these issues, and indeed, from the perspective of the Third World and from the vantage point of the poor and the marginalized.

* * * * *

I should like to conclude this brief editorial by paying homage to the memory of Fr. Thomas Vellilamthadam, my collaborator as section editor of *Jeevadhara* on 'Human Problem'.

In the prime of his life he was taken away from us so abruptly and most unexpectedly. From the seminary days in Propaganda Fide, Rome, we were bound together through deep bonds of friendship. He was a man in whom there was no guile. Humorous, relaxed and ever-smiling, he could discuss the most controversial topics without anger and malice. He knew after all, life is a *lila*

Theologian by temperament, and philosopher by vocation, he was interested in a wide range of topics — from down-to-earth things as *Chilly Sauce* and *African Payal* to the heights of *Greek Wisdom* — to quote the titles of some of his works. The last time I met him was when he came to see me off at the Kottayam railway station after a board meeting of *Jeevadhara* in May 1987. The last sight of him was his waving of hand as the train moved, and how could I ever know that he was taking leave of me for good.

He theologized a lot, and in his death too he has left a lot to meditate about the precariousness of our human existence.

Tiruchirappalli

Felix Wilfred

The Ecological Problem in India and its Consequences

1. Introduction

The past two decades have seen a sharpening of the consciousness of the problem of ecology in all its magnitude and complexity. This consciousness has led to the emergence of various studies and remedial measures. It has excited the imagination of various disciplines and made them bring out their contributions towards the understanding of the environmental question. This article is but a small contribution from a sociological perspective.

2. Approach and plan

In order to study the ecological problem, we shall first of all look into its causal factors in India. They will be sought first in the different conceptions of nature, from which originate different values, attitudes and lines of action. Secondly the consequences arising thereof in various fields will be examined. Finally we shall suggest a few lines of remedial thinking and action. We use here both qualitative and quantitative analyses to demonstrate our point. Hence we follow both descriptive and analytical ways in presenting our conclusions.

3. Different ways of viewing nature and their consequences

We shall point out here how humans have viewed nature differently because of the difference in the type of experience in life itself. We shall also show how the way of looking at nature and that of relating to it have very different practical consequences. This furnishes the contex-

tual setting for the understanding of ecology and the problems relating to it in India.

3.1. Nature considered positive; human in harmony with nature

The geographical configuration of India is constituted by a rich diversity of mountains, valleys, plateaus, forests, rivers, desert areas, and rich plains along the river beds. The rich diversity of the soil in several places allow the growth of several kinds of vegetables and fruits and the availability of various mineral products. In most parts of the country rain is seasonal. The climate as a whole is inoderate during one part of the year, and warm and hot during the other part. On account of a warm and moderate climate, people's basic needs such as food, clothing and fuel are very limited. Nature provides humans easily and in sufficient quantity for all their needs. There are no frequent cataclysms of nature as volcanic eruption and earthquakes. A periodical storm or tempest or flood reveals a glimpse of the power of nature. There is a certain regularity and rhythmic character in the occurrence of rainfall, of different seasons and of the beginning and end of the day. In short, nature presents itself to the Indian mind as a benign force and is conceived as the womb of a mother that gives life-sap to all creatures, sustains and guards them like a mother. Thus human experience leads man/woman to feel one in harmony with nature which is considered to be a place where laws of goodness and justice operate.

By virtue of one's feeling of harmony and union with nature, one's life becomes a part of that goodness and justice inherent in it to which one could either contribute or pose a threat. Thus nature is considered very positive and good. It is neither a place full of evil forces nor a rival against which humans should struggle, overcome and bring under control.

With this approach towards nature, the mind acquires two basic characteristics: The first is the capacity to contemplate this variety of natural things, to understand and

accept them. This gives an *immanent* character to one's experience of life in the world. The second is the capacity to search and apprehend a unity in this diversity. This gives one a *transcendent* character to one's quest. These two basic characteristics, i.e., immanent and transcendent, shape one's philosophy and theology and form two important dimensions of one's life.

This view of nature makes humans acknowledge it as a foundational reality where social meaning is grounded. The duty of human beings is to explicate nature by their skills. They have to understand nature and grow in interaction with it. This process is culture. Thus the more a human being experiences nature the more he or she becomes himself or herself. Hence culture can be said as the *naturalisation of humans* or the way to explicate the natural process.

The notion of nature and culture — the latter being conceived as the refinement and a sort of fulfilment of the former — leads one to consider life as a slow progress from the existing situation to the possible. Whatever exists has a potentiality of becoming more or of growing into fullness. This potentiality is to be understood in terms of a growth that comes about in time rather than fulfilled through any project of man or woman. Because of this the mode of thinking is characterized by symbiosis rather than dichotomisation of two exclusive poles. It is the process of symbiosis that fosters the tendency of hierarchisation of things in life. Hierarchy is a significant characteristic that one could find in all spheres of life. It is this process of symbiosis that helps man to cross from the existing reality (one pole) to the potential (to the other pole of fulfilment). The oft-cited verses of *Brihad Aranyaka Upanishad* 1.3.28. show it clearly.

'Lead me from unreality to reality
Lead me from darkness to light
Lead me from death to immortality'

It is symbiosis that makes two extremes meet and be reconciled into one reality in a hierarchy. Therefore in

this frame of thinking dichotomies such as idealism versus materialism, science versus faith and religion do not exist. Both extremes combine together in a continuum and intermingle from the very start by virtue of man/woman's experience of immanence and transcendence.

Hence the explanation of symbiosis is science in the Indian context. These contexts developed systems of philosophy as a science to explain this universe.

All these lead to a conception of the world more in qualitative terms than in quantitative ones. The world is a moral place for life to manifest itself and unfold all its potentialities. The world is thus conceived as life or no-life (animate or inanimate). All that have life, have a certain mystery attached to them and remain non-manipulable by humans. All that have no-life (inanimate) are accepted as the lower level of being and as a manifestation of *Brahman*.

Jiva, the Sanskrit word for life, signifies the life element in the world. This *jiva* is shared by humans, animals, plants and by higher orders of being. All life tends towards unity, thereby, creating a fellowship of all living beings. This fellowship feeling is to manifest itself in terms of *Karuna* (charity), *maitri* (active good-doing) and *daya* (sympathy) towards all living beings. The concept of *ahimsa* (doing no violence or harm to any living being or *Jiva*) is the direct outcome of this feeling of communion with all living beings.

Jiva is distinguished from *atman*, the Sanskrit word for self. *Atman* refers to beings with *Jiva* and self-consciousness. Thus man and woman would be *atman*. He/she would form both continuity and discontinuity with all living beings, animals and God too. There is a continuity of human with animals inasmuch as he or she has the same *Jiva*. There is a discontinuity inasmuch as he or she has *atman* which animals do not have. As one possessing *atman* human has continuity with God, the *Atman* par excellence, *Paramatman*. Nature consisting of beings with *Jiva* is hence the seat of cosmic energy.

This conception of nature leads human to be united in harmony with different beings. Hence it does not direct him to strive to bring nature under his control. Thus technology or developing of tools as a means of bringing nature under his/her control and service is not man/woman's ambition. All his/her creative energy is concentrated in the realm of life and consciousness, the important components of this world.

As nature is depicted as the womb of a mother that nourishes the child, so also there are at the popular level of belief cults of mother goddesses and feminine deities symbolising life and fertility. The concept of the world as cosmos is based on the notion of the unity of life. Hence cosmic order and life in the world are closely knit and are interdependent. Life can contribute to cosmic order or disturb it. The right maintenance of or contribution to cosmic order would make *jiva* (life) prosper while disturbing it could have the opposite results. Man/woman's psychic life and cosmic order would be so closely knit together that he/she could become a threat to the cosmic order by not contributing to its maintenance. This was the underlying preoccupation of the concept of *Rta* and *Dharma*.

This concept of harmony with nature has engendered a holistic vision of reality that is respectful of the ecological balance. Only periodic cataclysmic events such as torrential rain, floods, tempests and severe droughts would upset this harmony. However, it could be restored by humans again in due time.

3.2. Nature considered as a power to be controlled

In certain countries like Europe for the great part of the year the climate is cold and during certain months very cold, the temperature reaching many degrees below zero degree centigrade. Humans have to protect themselves from the cold climate in order to survive. In concrete day to day life this implies a hard struggle against natural environment in order to survive and acquire proper food, clothing and shelter.

In these places too nature has a rich variety: mountains, rivers, plains, meadows, etc. But there is at the same time a visible contrast of life and death in nature as can be observed in the change of seasons of the year. Cold and rain persist for several months of these seasons. Hence people's basic needs — food, shelter, clothing and fuel — are more acute and they have to be acquired by work. All this creates in people a certain aggressivity towards nature and leads them to consider nature as a rival against which they have to struggle and bring it under control. A desire to master nature, to manipulate it and to make it something serviceable becomes part of man's life. In this attempt to bring nature under one's control human also realizes the fact that certain forces of nature cannot be mastered.

All these experiences make them view the world in terms of object or non-object, i.e., of the masterable and manipulable or non-masterable and non-manipulable. Whatever could be mastered and manipulated they do so, and then try to improve the ways in which this could be done. This preoccupation leads a person to invent tools to master nature. As he/she succeeds with these tools to gradually master nature, newer and sophisticated tools come into existence. This process culminated in technology and industrial revolution and the creation of new productive forces. It is the same drive to master nature that is at the basis of the creation of science fictions and the efforts to translate these into facts.

Here we note a dual conception of nature. Nature is not considered as a ground of reality or being where social meaning is grounded, rather it is viewed as a raw material to work upon. That which is raw or not worked upon is called nature. When a person works at it, masters it and makes it serviceable to humankind one calls it culture which is a process of *humanisation* of nature.

Hence those who work upon nature in their day to day life and use it to the best of their ability, are considered cultured or civilized. Those who are not doing

so are considered uncivilised or barbarians or men from the bushes. The level of civilization is thus measured in terms of mastering the raw nature.

This approach to nature and the consequent preoccupation of tools result in technology and make one consider and define development in terms of the increased level of technology. The highest degree of the presence of technology is seen as the highest developed state, while a low level of technology, as under development and the medium level as developing situation. Thus the countries with the highest degree of technology, where private initiatives are permissible, are called the *First World* and the countries with a medium or low level of technology, the *Third World*.

This approach to nature gives importance to technology. Science is considered a system of explanation of this technology. The advance of science means the advance of technology. Thus science is equated with the advance of material things. Hence in the Western world in the 19th century science started opposing itself to faith and religion which concerns the ultimate questions of life. This concept of nature and the consequent emphasis on technology is the most basic constraint on the problem of ecology. Many of the ecological problems of today arise from this pattern of thinking which is slowly invading the entire world.

4. The meeting of these two world-views and interaction among them

In the precolonial era the Indian approach to nature was basically the first one. During the colonial time the advent and impact of industrial revolution of western countries started affecting the situation in India. The colonial power made fundamental changes in the socio-economic and political structures. They also introduced new education and health systems in line with their world-view. All these interacted with the existing world-view of nature in India and created a group of elites who would adopt the western approach to nature. As these elites

were also urban based, this facilitated their absorption into the Western world-view. Further the British had their own economic interests in India. With the help of the local elites they plundered the natural resources as raw material for their industrial growth. The introduction of cash crops like coffee, tea and tobacco greatly disturbed the local flora and fauna as vast areas were cleared for plantation economy. All these were justified in the name of development. These were the foundations and beginnings of the ecological problems in India.

In Independent India the elites who took over the power were of the same frame of thinking as the colonial rulers. Industrialisation was given top priority. Hence development of technology was eagerly sought after. Nature was considered only as a raw material to be exploited for the development of the nation and of individual interests. Every year in post-independent India the rhythm and speed of exploiting the natural resources both renewable and non-renewable steadily grow in high proportion in every field. We shall analyse here some of the ecological problems and imbalances created by this approach.

5. The ecological problems in India

In order to scrutinize the immensity of this problem we need to cover the entire gamut of forces that affect the ecology. Indian tradition ascribed five elements (*bhuta*) to nature. They are: space (*akasa*), air (*vayu*), fire (*agni*), water (*ap*) and earth (*prthvi*)¹. In order to get a global picture we shall treat the problem of ecology with reference to space and air, to water and to earth respectively.

5.1. Problems with reference to space and air

The atmosphere and air are very important conditions for human survival and for healthy life. This is getting polluted excessively by industries that send smokes charged with carbondioxide and other chemical ingredients.

1 M. Hiriyanna, *Essentials of Indian Philosophy*, Union Paperbooks, London, 1978, p. 24

Overcharging the atmosphere with these causes a partial or substantial destruction of the ozone layer, thereby posing a big threat to global climatic changes. Further when rain passes through this overcharged carbondioxide and chemical ingredients it gets polluted and becomes a kind of acid rain that can destroy a lot of vegetation. In the past few years we see very clear indications of a global climatic change occurring, e.g., the rainy months are getting delayed. These are clear symptoms of an ecological imbalance being created.

Besides the atmospheric pollution, there is also the air-pollution especially in urban areas caused by heavy vehicular traffic. This air-pollution is linked to several factors, like quarrying, crushing of stones and work with bulldozers and big machines which all fill the air with dust particles. As humans inhale this impure air it causes several diseases of lung especially in infants and in the aged.

The Bhopal gas tragedy is a historical example in India of the ability of human to pollute the atmosphere so dangerously as to kill several, blind several others and cause crippling effects liable to reach many future generations. Chernobyl is the international monstrous example of such a nature. Serious diseases and deaths are the tragic results of atmospheric pollution.

5.2. Problems with reference to water

There are two principal ways by which water is affected: first, water itself is polluted and it transforms its life-giving character into a life-killing one: secondly, all that live and are sustained by water get affected and depleted, namely marine life and vegetation. All this deeply affects the problems of human livelihood.

5.2.1. Water pollution and ecological problems

As the process of industrialization and urbanization is on the increase, there is a lot of industrial waste as well as sewage that has to be disposed off. The rivers and seas serve as convenient places for dumping these waste materials. The result is pollution of water with their

chemical and poisonous elements. People depend on the river water both for drinking and irrigational purposes. This pollution greatly affects again the health of people and vegetation.

We would like to quote Thomas Kochery and Thankappan Achari: "The presence of mercury and radioactive wastes from the Indian Rare Earths Ltd. in the effluent discharges to the River Periyar is a cause for serious concern. The toxic chemicals affect the aquatic flora and fauna. Fish kills have been common. The problem of marine pollution is steadily aggravating, since all wastes which cannot be stored on land or transformed into gas, eventually reach the sea directly or through rivers. Domestic sewage, industrial wastes, pesticides from agricultural fields drained by canals and rivers, radio-active wastes and oily substance from submarines and oil tankers are the chief pollutants of the sea. The major effect of sewage in the water is that it reduces its oxygen content. Similarly most of the industrial effluents, especially those from chemical industries, react with these elements in seawater and produce new compounds and new environmental conditions.

The effect of estuarine pollution of the Hooghly on fishing has been the subject of a number of studies by scientists at the CIFRI. A recent study has noted that in the 150 km. length from Nabadwip to Baj Baj, the average annual yield of fish in the unpolluted and polluted zones was 159 kg. and 26 kg. per hectare respectively."²

5.2.2. Depletion of inshore resources and ecological problems

Coming to the question of inshore marine resources there has been several studies made to highlight the ecological problems created by indiscriminate use of technology. India has a coastline of about 6000 km and the continental shelf of 259,000 km, with extensive bays, islands,

2. *Struggle to Survive*, A Dossier on the struggle of traditional Fisherman in India, I.S.I. & Delhi Forum, 1986, p. 76.

backwaters, lakes and ponds³. With this natural resource available to us we have every possibility of making the seashore people live in peace and prosperity. But the intervention of technology in the field of fishing industry has caused extensive damage to ecology.

Ms. Vishwapriya observes on this issue the following: "The crisis was initiated by the introduction of trawlers over three decades ago. Trawling as a method of fishing was invented during World War-II as a spin-off from attempts to evolve methods for removing mines from the sea bed. Trawling, by definition, scrapes the sea bed and thus brings up juvenile fish and fish-eggs while simultaneously destroying natural formations which facilitate fish breeding." Dr. Emerson, author of a World Bank working paper, states that "trawlers indiscriminately haul up everything in their path". Dr. Gopal of the National Institute of Oceanography also asserts that "constant sweeping of the sea bottom by shrimp trawlers has an adverse impact on the living organisms of the benthic zone". Such pronouncements by the scientific community or even the prevailing practices in western countries do not, however, cause even the slightest doubts in the mind of a government whose approach to fisheries development has been synonymous with quick profits and high exports. In 1952, when trawling was started in Kerala under the Indo-Norwegian project, it had already been banned in Norway itself and many other western countries⁴.

Overfishing and resource depletion have been very much associated with modern fishing technology comprising shrimp trawling and purse-seining. "The fisher people of Kerala have been fishing in the inshore waters for thousands of years and have evolved fishing methods, craft at different locations etc. Their fishing nets, have different mesh sizes to suit different species of fish whereas the mechanised vessels use a single net which traps

3. Puri, G S. et al, *Forest Ecology Vol. 1 Phytogeography and Forest Conservation*, Oxford and I B H Publishing Co, New Delhi, Second Edition, 1963, p. 2

4. *Struggle to Survive*, op cit p. 97

fish indiscriminately including not only juveniles but also fish eggs. The artisanal fishing methods are not only well tuned to the environment but also ensure minimum damage to the marine stock. The heavy accessories like the other boards and iron chains tend to destroy the living organisms and tiny plants on the sea bed under the pressure of trawling.

The fishermen became conscious of the ecological consequences of mechanised fishing only when they found that they were squeezed of their share of the fish catches. Between 1969-71 and 1980-82, the share of fish production in the artisanal sector in Kerala declined from 3.35 lakh tonnes to 1.67 tonnes in 1980-82, the decrease being about 50 per cent.

The studies conducted by the CMFRI on prawn fishery in Shakthikulangara - Neendakara shows that between 1973 and 1980 the catch per unit effort declined from 82.6 kg/hour to 7.6 kg/hour. In a study of the period, the total production of prawns in Kerala declined from 86,000 tonnes (1975) to 22,400 tonnes (1981)⁵.

The net result is the pauperization of the fisherfolk, especially those who relied on traditional means for their livelihood. Nature instead of nourishing humans becomes barren and burdensome to them.

5.3. Problems with reference to the earth

India is one of the richest countries in the world in both inorganic and organic natural resources. There are at least 15,000 known and described species of flowering plants in India. India has one of the largest assemblages of woody plant species, over 5000, of which 2500 are trees. Indian forests abound in flower and fruit trees and at least 150 species provide valuable timber and wood⁶.

In India 74.88 million hectares of land constituting about 22.7% of the total area of the country have been

5. Ibidem p. 72

6. Puri, G. S. et al, Op, cit, p. 1

classified as forest. When we compare this to the total area of land under cultivation amounting to 152.6 million hectares, forest area is almost 50% of the cultivated area of the country⁷.

This forest area has been a specific target of industrial development and urbanization. The wood for fuel, timber for various purposes and other kinds of forest products such as grasses, bamboos, bidi leaves, sal seeds, resins and tannins, fibres etc. are playing an important role in the industrial and agricultural sectors of our economy. The scale and rate of the exploitation of renewable forest resources have increased to an unprecedented measure. The degree of deterioration spread over centuries in the past is now being achieved within years due to the population explosion and human ruthless exploitation of these forests that are most valuable economic resources available. The following table illustrates the way forests vanish⁸.

State-wise forest area lost for various purposes during 1951-52 to 1975-76
(Thousand hectares)

State & Union Territory	Forest area lost on account of					Total
	River valley Pro. jects	Agricul- tural pur- poses	Con- struc- tion of roads	Estb. of indust- ries	Miscel- laneous pur- poses	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra Pradesh	33.9	153.0	-	8.5	6.8	20.22
Assam	19.7	17.6	6.6	2.9	25.8	72.6
Bihar	1.3	48.3	1.1	11.1	5.8	67.6
Gujarat	35.0	21.1	0.3	1.1	122.9	180.4
Haryana	-	-	-	0.1	18.0	18.1

7. Society for Participatory Research in Asia, New Delhi, 1983-1984, *Deforestation in Himachal Pradesh*, Aruna Printing, New Delhi, p. 2

8. Puri, G. S. et al. op. cit, p. 505

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Himachal Pradesh	7.7	12.1	1.2	-	5.7	26.8
Jammu & Kashmir	0.1	0.3	0.2	-	90.2	90.8
Karnataka	81.3	79.5	1.7	1.5	144.4	308.4
Kerala	7.8	94.6	0.2	12.1	74.3	189.0
Madhya Pradesh	69.2	1453.3	0.4	24.8	262.1	1809.8
Maharashtra	13.0	118.8	33.1	7.9	42.7	215.5
Manipur	-	nil or negligible	-	-	-	-
Meghalaya	-	nil or negligible	-	-	-	-
Nagaland	-	nil	-	2.0	0.1	2.1
Orissa	46.8	8.3	0.8	24.2	29.2	109.3
Punjab	-	0.4	-	-	8.1	8.5
Rajasthan	14.5	33.0	0.3	1.3	36.7	85.8
Sikkim	-	nil or negligible	-	-	-	-
Tamilnadu	45.6	6.6	0.1	0.3	13.0	65.6
Tripura	7.9	11.2	0.2	negligible	19.7	39.0
Uttar Pradesh	93.5	83.8	4.6	19.4	20.5	221.8
West Bengal	1.7	313.7	2.6	2.9	3.6	324.5
Total States	479.0	2455.7	53.4	120.1	929.6	4037.8

The problems created by this deforestation are becoming increasingly well established scientific truths. Ecological ruins start with deforestation.

Floods and droughts are the faces of the same coin of soil degradation and misuse of our land. Water running off the land deprives plants of the soil moisture and becomes a source of drought. Concentration of the same water downstream causes flood. This soil degradation causes serious problems not only to the productivity of the soil but has its repercussions on the downstream area through increased floods, choking of rivers and the rapid siltation of reservoirs. With the present siltation rates useful life

of the reservoirs is depleted two to five times earlier than estimated rates⁹.

Another effect of the depletion of forests is the drying up of fresh water springs, creating acute scarcity of drinking water even in areas where the annual rainfall exceeds 150 cm. The influence of forests in modifying climatic parameters through the crown can be commonly experienced. Forest-cover reduces the range of temperature — annual, monthly and diurnal¹⁰.

Another advantage of forests is the reduction in wind velocity, even up to 20 to 60 percent depending on tree height, stem and foliage density and to some extent on wind velocity and its upward gradient. Deforestation allows more devastation of any cyclonic wind movement causing severe damages to people and vegetation¹¹.

Coming to agriculture, particularly to so called green revolution, we see that the use of chemical fertilizers and pesticides are not a blessing to the farmer. In the words of Vandana Shiva: "Different components of the green revolution farming are tightly integrated with each other and together they threaten the life of the soils ... Chemical fertilizers in general have destructive effects on soil life, partly because they lack the life-giving properties enhancing soil-moisture retentivity and increasing soil productivity through soil fauna and flora that are contributed by organic fertilizer. High short-run yields are traded for long term decline in production. Chemicals like nitrates are also a major source of ground water pollution. Notwithstanding all these drawbacks, the use of chemical fertilizers is growing because of an ecologically uninformed agriculture policy and because of heavy subsidies to induce shifts from organic to chemical manuring.

The final input of green revolution agriculture that is killing the soil is pesticides. Pesticides do not merely kill pests, they also kill the biological life in the soil which is

9. Ibidem, pp 510 f

10. Ibidem, p. 511

11. Ibidem, p. 514

responsible for decomposing organic matter and contributing to soil fertility. Applications of poisons on crops finally reach the ground... Pesticide residues in the soil thus pollute the soil environment... Under the assumption that nature is clumsy and we are more efficient, we are slowly undermining nature's productivity. The death of the soil is just one among many of the expressions of the arrogance which forces us to work against nature's productivity rather than build on it... Yet we refuse to learn from these errors and continue to turn soil fertility into cash, to turn productive lands into deserts, and our people into environmental refugees fleeing from these dying soils."¹²

6. What do we advocate ?

The argument is not that technology is bad and that we should not use it since it destroys ecology. The point that we would like to underline is that Technology like fire is a good servant but a bad master. Hence, the use of technology should be subservient to certain principles of ecology. It is the world-view that one inherits or obtains in and through education or socialization that determines whether technology is subservient or dominant in one's life. Hence a proper educational process through awareness building needs to be done to get people organized into groups and build up movements like *Chipko movement* in order to counteract the evil ahead of us. The cultural heritage of India's holistic vision and harmony with nature is a great source for resolving ecological problems.

This world has to become a home (*oikos*) for human beings. They should use technology to make of this world and nature a real home (*oikos*) and not convert it into a grave. In every sphere of ecology they should be sensitive to the vicissitudes of nature, the resources it offers, its renewable rhythms and the protection it affords to human family. In this way the application of technology should aim at maintaining the ecological balance and make nature beneficial to humankind.

¹² Lokayan Bulletin, 3-4/5 October 1985; Delhi, pp. 110f

Smithu Kothari summarises the danger ahead of us in the following words: "Nature is not seen as a relatively infinite producer and provider but as something that has to be moulded and most often desecrated for short-term gains. Earlier, there was adequate scope for extracting surplus without necessarily undermining the productivity base. Crises were temporary, local. Today, as this process becomes widespread, they are becoming all pervasive. Second, the existing idea of scientific and technological growth has legitimised the dominant theories of growth and surplus generation. They have arrogantly endorsed the underlying assumption that solutions to problems are the prerogative of experts schooled in modern developmental thinking.

We would like to argue the other way — that the existing patterns of production and of energy and resource use have created the 'threat to survival'. The introduction and spread of more 'effective' technologies in areas like agriculture, forestry and fishing has seriously undermined the physical and psychological survival of poor and marginal communities all over the world. And alongside this biological survival of marginal communities is the continuous threat to the survival of their cultures...

The overall consequence of all this is a degradation that is almost irreversible. The resource base of more and more people is shrinking. Hitched to a 'system' designed not to take account of 30-40 per cent of the people, survival for many has become a daily struggle. What is worse, any demand to stop such 'development' gets translated by the system into an act of confrontation and is dealt with through repression and genocide.¹³

7. Conclusion

The ecological problems are connected with the survival of humankind in the world. If humankind does not

13. Ibidem, pp 8.

become aware of the way it is undermining its own safety, health and very existence itself, the ecological problem will overtake it like a deluge leaving no traces of human existence. The signs of times are like the writing on the wall which the present generation should become aware of and make efforts to create a new history.

Delhi

Yvon Ambroise

Nature, Technology and the New Society

Would it be an exaggeration to say that ecology is the greatest problem which faces humanity to-day? The conflict between East and West is a political and economic problem; the conflict between North and South is economic and cultural; even the conflicts of race and religion are in a sense local and particular. But the problem of ecology involves the very existence not only of humanity but of the planet earth itself. The earth on which we live and on which we depend for our existence is being exploited in such a way that the very existence of life on this planet is threatened. There is first of all the problem of the rain-forests, on which the climate of the planet largely depends, which are being systematically destroyed day by day. This means that not only are the trees and plants being destroyed, but also the birds and beasts and insects which depend on them are disappearing, so that whole species are being eliminated. Akin to this is the problem of 'acid-rain'. Chemical effluents from factories going up into the air enter the clouds and come down in the form of acid rain which is destroying the forests of central Europe and America. Even more serious than this is the gradual depletion of the ozone layer, which protects the earth from the violence of the sun's rays. The same poisonous chemicals from factories enter the ozone layer and have already created a hole in it, which if it is allowed to grow could result in the burning up of the planet by the sun's rays. Then there is the pollution of the water of rivers, lakes and seas which is destroying the fish and making the water undrinkable besides sprea-

ding disease. It is well known that the Ganges is now polluted almost throughout its length in the plain just as the forests of the Himalayas are being cut down like other forests causing both floods and drought in the plains, because the flow of water is no longer controlled.

Such are some of the problems of ecology which face the world to-day and which affect India no less than the rest of the planet. It must be clearly recognised that there is nothing accidental in all this. It is the direct result of the system of science and technology which has come to dominate the greater part of the world.

The present system of science and technology, which is now accepted in India as in the rest of the world, derives from the discoveries which were made in western Europe in the sixteenth and seventeenth centuries. At that moment in history a break was made with the 'perennial philosophy', which had guided the world up till then and human ingenuity was concentrated on the material world and the means to control it. It was at this time that the idea emerged that the material universe is a machine and the mechanistic model of the universe was developed, on which modern science and technology are based. The theory was first enunciated by Descartes that the material world is an 'extended substance' (*res extensa*), which is quite separate from the mind, which is a 'thinking substance' (*res cogitans*). The material universe was moreover governed by mathematical laws and once these laws were known the universe would be known.

Descartes was succeeded by Bacon, who recognised the implications of this theory for practical life. Once the 'laws' of nature were known, the material world could be controlled and manipulated by human beings for their own purposes. It was thus that the foundations of modern technology were laid. Finally the whole system was perfected by Newton, whose mechanistic model of the universe came to dominate western science for the next two centuries. Now Descartes, Bacon and Newton were Christians who believed in a creator God, who was responsible for the

world machine. But very soon after the Enlightenment of the eighteenth century the need for a creator God was felt to be superfluous and the way was open for a fully materialist philosophy. At the same time the human body being conceived as a machine obeying the same laws as the rest of the universe, the need for a soul was no longer felt and the soul became reduced to the 'ghost in the machine'. Thus the way was prepared for that materialist conception of the universe which became explicit in Marx, but which is implicit in most modern thought.

It is well known, however, that this mechanistic model of the universe has broken down under the impact of Einstein's theory of Relativity and of Quantum Physics and a new model is emerging to-day, which is that of an organic universe. The universe is conceived not as a mechanical system of separate parts but as a 'field of energies' in which all the parts are inter-related and inter-dependent. Further the human mind is no longer seen as by Descartes as a separate entity but, as part of this integrated whole. It is no longer possible to separate mind and matter. The world which science observes is not an independent universe but matter reflected through the human senses and the human mind and the instruments which are devised to make it accessible to human consciousness.

The dualistic universe, therefore, of the past, where everything was seen in terms of subject and object, mind and matter, space and time, is giving way to the concept of a cosmic whole, an integrated system or 'complicated web of interdependent relationships'. We are thus being led back to the ancient vision of the universe as an integrated whole in which man and nature co-operate. It has been recognised how close the view of modern physics is to the ancient Buddhist view of nature as a constantly changing flux of elements held together in human consciousness and to the Hindu concept of the dance of Siva, the material universe forming the body, the field of energies (*sakti*) which is organised and controlled by the power of consciousness or Siva.

In all the ancient world it was understood that the whole universe depended on a power of 'order'. In India it was known as *rita*, in China as the *Tao*, in Greece as the *Logos*. This led to the concept of the three worlds as we find it in the Rig Veda. There was the material world, later known as the *pradhana*, the world of human consciousness, the *citta*, and above all, and pervading all the supreme power and consciousness which was responsible for the order of the universe.

It is this view of the universe which we have to recover to-day. We can no longer accept the present system of science and technology based on the old mechanistic model of the universe. We have to recognise that the universe is an interdependent whole and we ourselves are parts of the cosmic whole. The human being is not an isolated individual struggling for existence in an alien universe, but a member of an organic system, which is governed by an inner consciousness in which we ourselves participate. We are members of one another and of this planetary system and we are responsible for the well-being of the universe in which we live. We can recall St. Paul speaking of the whole creation 'groaning in travail' while it 'waits for the revealing of the sons of God'. We are the 'sons of God' responsible for the 'new creation', the universe which is being built up day by day into the kingdom of God.

What would be the effect of this new vision of the universe on our way of life? In the first place it would put an end to the exploitation of nature which is the mark of economic and political systems, both capitalist and communist, to-day. The present policy is to exploit the resources of nature for human development, regardless of its effect on the environment. We are, in fact, using up the resources of coal and gas and oil as well as minerals in such a way that they will be exhausted after a few hundred years. This process would be reversed by the new understanding that the universe is a delicately balanced whole for which we are responsible. This would give us a new attitude to

the earth and its resources, to the sea and all the creatures in it, to the animal world and the question, for instance of vivisection, and to outer space, whether we see it as a sphere for human exploitation or as a 'sacred' space, a sphere which calls for reverence and respect.

It is, in fact, the sense of the sacred, which we have to recover above everything, a sense which still survives in India, though it is being eroded day by day. In this view all the earth is sacred, it is a holy place, a Mother who nourishes us all. In R. Panikkar's *Vedic Experience* there is a beautiful hymn to the Earth from the Atharva Veda, which reveals the profound sense of the sacredness of the earth and everything on it, which was typical of ancient India.

This new sense of the sacredness of the earth and of our communion with the whole natural environment would lead to another kind of technology. It would reject the mechanistic technology of the western world in favour of the 'appropriate' technology of Schumacher, which answers to the needs of the vast majority of the people of Asia, Africa and South America, who live in rural communities. This would lead to the rejection of the present urban civilisation which draws millions of people into huge cities like Bombay and Calcutta and creates inhuman conditions of living. An 'intermediate' or 'appropriate' technology such as Schumacher envisages, would build up from the villages, as Mahatma Gandhi sought to do, and develop a village economy, in which the basic needs of the people would be satisfied. This would mean a recovery of the basic crafts of spinning and weaving, of pottery and carpentry, of building and metal work and of course of all forms of gardening and agriculture. All these crafts were evolved in the neo-lithic age and mark a definite stage in human progress. When we look back on the past and see the weaving, pottery, woodwork and metal work of the people of those times, we put them in museums and marvel at the beauty of these common works of ordinary people. When people live in harmony with nature their

work has an inevitable beauty, which is lost when goods are produced in factories by machines.

This new understanding of the relation between nature and humanity would lead to a new type of human community, or rather to a recovery of the traditional type of community. Here I would like to quote from Lewis Mumford in his book *Myth of the Machine*, where he describes the typical neo-lithic village. This is a type of village which existed for thousands of years all over the world and still survives to some extent in India to-day. This is how he describes it: 'Where the seasons are marked by holiday festivals and ceremonies; where the stages of life are punctuated by family and communal rituals; where eating and drinking and sexual play constitute the central core of life; where work, even hard work is rarely divorced from rhythm, song, human companionship and aesthetic delight; where vital activity is considered as great a reward of labour as the product; where neither power nor profit has precedence over life; where the family, the neighbour and the friend are all parts of a visible, tangible, face to face community... There the neo-lithic culture in its essential elements is still in existence.'

Mumford's description of the neo-lithic village remains a model for human community. Science and appropriate technology building on that may introduce improvements especially in the form of transport and communication, but these again will be based on natural resources of energy like the sun. Nuclear energy is the last word in the brutal technology of western science, while solar power seems to offer the best hope for providing the energy necessary for human development. It is available everywhere — especially it may be noted in the third world — and is inexhaustible. Water and wind are, of course, equally acceptable as sources of energy. In this way nuclear power could be completely abandoned and the threat of global destruction removed from the earth.

Education in the new society would be basic education as conceived by Gandhi. It would be an integral education

of body, mind and spirit, relating each person to the natural world in an organic way and developing their personal capacities. Perhaps following Rudolph Steiner such education would centre first on emotional growth. According to Steiner during the first seven years the growth of the child is primarily emotional and education should consist in fostering this emotional development. During the next seven years the imagination predominates and education should centre on music, dance, art and poetry. Only from fourteen onwards should the rational, logical mind be seriously trained. In the present system of education everywhere children are trained to develop the rational mind from the earliest age with disastrous effects on the human personality. By Steiner's method an integrated personality is developed in which the emotions, the imagination and the reason are balanced and harmonised.

Finally, we come to the place of religion in this new model of society. This involves a return to what has been called the 'perennial philosophy'. This is the wisdom which underlies all religion from the earliest times. We have to learn to respect the traditional wisdom of primitive people, like the Australian Aborigines, the American Indians, and the tribal people of Africa and Asia. More and more we are discovering to-day the profound wisdom of these people, which enabled them to survive over thousands of years — the Australian Aborigines are believed to have been in Australia for forty thousand years. Their life was based on a profound understanding of the natural world, the human world and the world of the gods or spirits. It is these three orders of reality, the physical, the psychological and social and the spiritual, which constitute the basic structure of human existence and wisdom consists in the integral harmony between them. It is this integral wisdom which was lost at the Renaissance and which we have to recover to-day.

The great religious traditions of the world, Hindu, Buddhist, Jain, Sikh, Taoist, Confucian, Shinto, Zoroastrian, Judaic, Christian and Muslim are all based on this traditional wisdom which developed in the first millennium

before Christ into a consistent system of philosophy. All these traditions embody in their different ways the ancient wisdom and wholeness of life. Each of these traditions has to be seen as inter-related and inter-dependent with the others, each giving a particular and unique insight into the ultimate truth of human existence. Each of them grew up apart for the most part, often without contact with the others, and hence developed rivalry and conflict with the others, resulting in the disastrous divisions of religion which we experience to-day. Only when we recover the holistic vision of the universe can we hope to reconcile these conflicting forces. The Semitic religions in particular Judaism, Christianity and Islam have to give up their exclusive claims, which have caused such terrible divisions in humanity. This would enable them to recognise the action of God in all humanity from the beginning of history.

This leads to a consideration of the other characteristic of the new society—that is, the recovery of the feminine in every aspect of human life. Western society for the past three thousand years has been largely patriarchal. This was a necessary stage in human development, as humanity had to pass from the matriarchal system with its dependence on the Mother to the freedom of the individual person and the recognition of the transcendent, personal God. This was above all the task of Israel in the history of the world. Christianity has up to the present retained this character of a patriarchal society with an all-male deity and an all-male hierarchy, especially in the Roman Catholic Church. But the feminist movement is now well established and it is only a matter of time before the changes necessary to recover the feminine in every aspect of the life of the Church will take place. This is, of course, part of the wider movement towards the recognition of the place of woman in society as a whole. This is where the most fundamental change in the structure of western society is called for. The present industrial system is the product of the masculine rational, scientific mind, which has come to dominate the whole world. The change has to take place to the awakening of the feminine, intuitive mind. This is sometimes spoken of in terms of the right and the left!

brain. The left brain is said to be the source of logical, rational, scientific thought, while the right brain is the source of intuitive, concrete, symbolic and imaginative thought. Our present civilisation is dominated by the left brain, which has left the whole society psychologically unbalanced. We have reached the limit of what the Chinese call the Yang, the masculine mind, and are now moving towards the Yin, the feminine intuitive mind. The hope of the future is in the balance and harmony of these two sides of the brain, these two aspects of human nature.

Our present system of science and technology, therefore, represents a particular phase in human development. It has made its own contribution to human progress, but it now threatens to destroy the world. We have to face the disastrous effects of this mode of thinking and acting in human life and prepare for the changes economic, social, political, psychological and spiritual which are called for today. For the Church this is a particular challenge, because the structures of the Church to-day are all the product of the Greco-Roman mind which, building on the original Semitic revelation, organised the liturgy, the theology and the administrative structures of the Church from the second century onwards along the lines of western, logical, rational thought. The new age, which we are now entering, demands a change in all these basic structures, as the Church enters into the cultures of Asia, Africa and South America, where the feminine, intuitive mind is still active. A new theology recognising the feminine aspect in the Godhead; a new ecclesiology recognising the ministry of women in the Church; and a new spirituality, recognising the values of oriental and primitive spiritualities, will all be required. But that can only be the work of the Holy Spirit, the feminine principle in the Godhead, for as the book of Wisdom says: 'She being one has power to do all things and remaining in herself renews all things'. To her we have to entrust the future of the Church and the world.

Liberation Ethics of Ecology

In this short reflection on ethical issues of ecology I intend to stress that the present ecological concerns for a human environment for the life of humankind of the present and the future must include clearly and unambiguously commitment to the liberation of the poor and justice to them. The reason is that we are living in a world that is divided into rich and poor nations and the powerful and the marginalised. Situating the ecological crisis and articulating ecological concerns in such a world is of critical importance for the shaping of ecological imperatives that are truly adequate, historically effective, wholesome and credible. Development of and care for the earth and the cosmos as habitat for human life and all life demand an ethics that guarantees liberation of the least and the last and justice to them. If the perspective of the poor of the world and commitment to their justice and liberation are ignored in the perception and articulation of the ethical obligations and responsibility for the environment of the earth, the latter would be an ethic of ecology ideologically biased in favour of the affluent and advanced countries and classes of the world.

Origin of ecological ethics

This becomes clear if we examine the social ethics and the perspectives that lie behind it. Affluent and powerful countries have been fast depleting the scarce resources of the earth to increase through greed their own affluence to the detriment of justice to the Third World countries and the marginalised of the world and polluting excessively the environment, the habitat of all humankind and all life. An affluent and advanced country like America

junks every year 7 million cars, 43 billion cans, 20 million tons of paper. Its industries also pollute the environment by pouring out 160 million tons of waste and 172 million tons of fumes and smoke into space in a year. This country alone was responsible already 15 years ago for 50% of the world's industrial pollution. An average American puts 1500 pounds of pollutants into the environment per year¹. Such depletion and pollution have been part of an exploitative economy and industrialisation. The impoverishment and underdevelopment of many Third World countries is the price paid to the one-sided affluence of some countries. This causal nexus have been studied by the U.N. agencies and many scholars. Our point here is that the rich and powerful nations have been rudely awakened to the near absolute depletion of the scarce resources of our earth and the near intolerable level of pollution of the earth and our space whose main causes lie in their own greed for advancement and progress ignoring the limits of our earth's resources and denying the poor of the world these resources for their own decent human existence.

This is the social context of the origin of ecological concerns and ethics. The affluent countries cry "wolf" for the whole world about the universal danger we are in, while they have been its principal cause. Their "call to arms" to defend the earth as our habitat is basically to defend their level of affluence and standard of life. They are frightened about the possibility of losing it. The ecological concerns they shout out hide this fear. These concerns for the protection of the earth as habitat for human life hide their anxiety about the protection of their level of affluence and progress. There is a survival anxiety syndrome marking the ecological concerns of the advanced countries. They tend to equate the struggle of the poor of the world for basic needs of decent human living with their attempts at "survival" in their present state of affluence.

1. Richard A. McCormick S. J., *Notes on Moral Theology 1965 Through 1980*, University of America Press, Washington D. C. 1981 p. 322

The latter is an ecological bias in their favour that ignores the claims of justice to the marginalised of the world. Such a bias cannot help an ecologically sustainable earth in which justice for the least and the last can be guaranteed. Their ecological ethics contextualised as it is in such a situation and their concerns regarding the protection of the environment need to be criticized by a social analysis of the class interests of the rich and the powerful.

When we read the literature on ecological ethics originating in the affluent countries, we hardly notice any analysis of class interests². Justice to the poor nations and critical awareness of the greedy and unjust depletion of the scarce resources of the earth and the reckless pollution of our environment are peripheral to such literature. There is no shaping of ecological imperatives and responsibility from the point of the poor, the exploited people of the world who struggle for basic needs and decent level of human existence. It is this ecological ethics that is powerfully disseminated to all of us through the mass media, over which they have unquestionable power, as the ecological perspective that seems to shape the ecological responsibility and imperatives of the poor countries of the World and the marginalized everywhere. The rape of nature, the massive pollution of our environment and the irresponsible and greedy exploitation and the limited resources of the earth and the sea need to be repaired by rendering justice to the victims of such exploitation. Metanoia for new liberative and wholesome ecological ethic should include such a work of justice. They have a claim in justice to the resources of the earth and the sea for fulfilment of basic needs of decent human living besides the just right of all to a healthy and livable habitat.

The metanoia demanded of the affluent and the powerful nations and peoples includes an obligation of renunciation of affluence, an asceticism required of justice due to

2. Cf. Richard A. McCormick, S.J., *op.cit.* pp 362-381; Cf. Bernard Haring, *Free and Faithful in Christ*, vol. 3. Cross Road, New York, 1981, cf ch 5 on Ecology and Ethics.

the deprived and of responsibility for a healthy, habitable environment for all. The literature of ecological ethics coming from such nations do not show clarity of an asceticism and a spirituality for justice.

Ecological ethics in a Third World context

These few critical reflections on the origin of ecological ethics originating from the affluent countries should warn us against adopting uncritically their ecological concerns for ecological policies and obligations in Third World countries.

Another note of warning is in order here. Morality in a divided world of the powerful and the powerless reflects the class interests of the powerful³. In Third World countries, this division influences also the ecological morality. The ruling elite and technocrats easily adopt the ecological concerns and morality of the affluent countries since in their position of privilege, power and well-being, they tend to support ecological perspectives and ethics that are biased in their favour. The power to decide on priorities on industry, agriculture, technology remains concentrated in their hands. In a feudal infrastructure of a country like ours, their distorted priorities get once more distorted through contractors, petty bosses and greedy landlords at the level of implementation to the detriment of justice due to people, especially the landless, and the exploited workers, little peasants etc., besides their destructive effects on forests, land and sea.

Participation of the marginalised in deciding ecological priorities

Is there a way out? In our country as in all other Third World countries, ecological priorities governing industry, agriculture, land, and sea must be shaped by participation in decision-making by the marginalised to guarantee justice to them. Any ecological policy, pers-

3. Cf. S. Arokiasamy S.J., "Sarvodaya through Antyodaya - The Liberation of the Poor in the Contextualisation of Morals", *Vidyajyoti* 51 (1987) pp. 545-564 on this perspective.

pective and imperative that exclude the participation of the marginalised in decision-making regarding environment and justice due to them in their struggle for basic needs of decent human living are ethically unacceptable, and they must be rejected. In this connection, we must mention many people's movements that promote the participation of the masses, especially victims of ecological disasters through conscientisation regarding pollution, deforestation and depletion of sea resources to the detriment of justice due to them. They through their own study and research expose the distorted ecological priorities of government and industrialists often under the influence of multinationals who have profit as their principal aim and the resultant injustice to the workers and the marginalised, besides the considerable damage to the environment. Our point here is that ecological ethics in a divided world of rich and poor and in a Third World country like India must include liberation of the poor and the marginalised for such ethics to be adequate and effective. Creating a sustainable, healthy and viable environment is inseparably connected to the creation of a just humane society.

We need an environmental ethics that does not merely deal with management of ecological crisis but it should make clear the obligations of justice and responsibility to create a healthy and habitable environment. Regarding ecological responsibility, it should be clear from the foregoing reflections that the particular imperatives and responsibility for the environment are different for the affluent polluting and exploiting countries and persons and for the victims, the marginalised and the exploited within the parameters of common responsibility for a healthy habitable environment for the well-being of the present and future generations and a world that is built on justice and brotherhood.

Stewardship for creation - a critique of Judeo-Christian view

In these reflections on environmental ethics, I would like to reflect critically on Judeo-Christian world view and

the Indian (Hindu) world view and their contributions. Judeo-Christian tradition has been accused of having fostered an instrumentalist view of nature⁴ and domination of the earth for human's greed rather than responsible use of it for his/her need in the consciousness that it is God's gift and trust given to all human-kind. Today with increased awareness of ecological disasters there is recovery of the charge of the earth that God gives to humankind (Gen. 1:28) as a stewardship rather than unhindered right to exploit it recklessly. In Hebraic-Christian view, there is a sense of reverence for creation and appreciation of creation as God's gift for all humankind. Creation is a sacrament of God's bounty and providence for man woman. Humans are called "to till the earth and care for it" (Gen. 2:15). Such a meaning has been vitiated by the dualism of Greco-Christian view of creation in which creation as gift and sacrament of God's loving has little place and which through a non-sacramental view and hellenistic dualism has fostered an instrumentalist view of nature which has led to excessive and reckless exploitation of the earth. This view through greed has supported creation of the rich and the poor. Even here I would critique the idea of stewardship that does not reckon with Divites and Lazaruses of nations and peoples. Such an idea will not be adequate to guarantee justice for Lazaruses of the world and wholeness of creation, nature and environment as habitat for all humankind present and future and for all life. The stewardship for creation must be critically situated in and interpreted according to the demands of a divided world into classes of the rich and the poor. The stewardship for creation must include justice to the marginalised and the exploited of the earth in order that it becomes liberative and wholesome.

Indian (Hindu) World-view

Indian World-view considers human-nature-cosmos as interrelated unity⁵. Positively it is the right relationship

4. J. Miguez Bonino, *Towards a Christian Political Ethics*, SCM London' 1983, p.13. cf also S. Arokiasamy S.J. "Technology and the Future" *Vidyajyoti* 50 (1986) pp. 395-406, esp, pp. 399-401.

5. S. Arokiasamy "Technology and the Future" pp. 399-401,

and order (*rita*) between human, nature and cosmos and redounds to the welfare both of human and of the cosmos. Due relatedness for harmonious unity is the strong-point of the Indian world-view. According to this view, the ethical obligation regards as precisely responding to relationality for harmonious unity. There is a stress on wholeness, unity and integration in this world-view. Since harmonious unity between human, nature and cosmos brings wholeness to all as fitting and fulfilling for man woman, we have ethical obligation to work for it.

The stress on unity and wholeness in Indian World-view has been its merit. But unity and wholeness call for ethical commitment and responsibility in our history alienated by exploitation. It must include justice to the marginalised and liberation of the exploited. Only then can commitment and responsibility to unity and wholeness be lived out in a divided world in a wholesome, liberative and historically adequate manner. In our country without this relationship of our world-view to the liberation of the marginalised, our fine cultural heritage that stresses human-nature-cosmos unity, is in danger of becoming an irrelevant vedicism. Such a critique of the Indian world-view has yet to influence our environmental concern and ethics and shape our policies and priorities regarding industrial policies, afforestation and technology in our country.

Education for ecological consciousness

All educational effort at raising ecological consciousness should include unmistakably commitment to justice to the least and the last of humankind. Without this commitment to justice and due relatedness to our fellow human beings now and in future and to nature and cosmos, we cannot form in ourselves a conscience that is sensitive to the need for wholeness of our habitat for all life. A capitalist, consumerist economy, industry and societal organization promoted by the affluent countries and the powerful elite in Third World countries determine the quality of environment we create. The ecological crisis is not merely a problem of

biosphere and physical ecosystem. It is related to the type of society, economy, politics and culture we choose to foster. Education for a wholesome liberative ecological consciousness should articulate the connections between our socio-cultural options and what we do to our environment. We need to continually critique the dominant world view and ideology that influence our economics, industrial policies and social organisations in terms of liberation of the marginalised and the exploited and social justice. Formation of ecological conscience for the wholeness of environment and quality of life lies in this direction⁶.

Liberation of ecological perspectives and of environmental ethics from the point of commitment to justice to the powerless and the marginalised of the world alone can make for the wholeness of our ecological obligations and responsibility. Humanisation of environmental ethics will always include perspectives from culture, religion and social and physical sciences and sciences of biology. But such interdependence must include the critical perspective of justice to the marginalised and the exploited of the world for that alone will make for liberation of ecological ethics and shape a liberation ethics of environment that guarantees wholeness of the earth and cosmos as a habitat for human life of the present and future generations and for all life.

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6. Haring, *op.cit.*, pp. 184-192.

Ecology and Culture

Some Indian Perspectives

The title "Ecology and Culture" may seem surprising to some. What has culture to do with ecology? Ecological problems would rather seem to be the result of the exploitation of nature through unbridled industrial expansion. A little reflection, however, would make it clear that ultimately it is Man and his attitude to and use of nature and technology that are at the root of ecological problems. Man's presence to the world (of nature) is not governed simply by a stimulus-reaction relationship at the physical or instinctual level. Man is not like other animals, acting according to instinct. On the contrary his response to stimuli is delayed and mediated by memory, imagination, judgement and freedom. This process is conditioned by his view of the world, of Man's role in it, of relationships, of the aims of life, etc. This means that Man's relationship to nature is mediated by culture. Ecological problems that affect the world today have their origin in the manner in which Man uses/abuses nature. This is determined by culture. It does not depend either on the 'nature' of Man or on the 'nature' of technology or on the 'nature' of the world — even if such 'natures' can be separately identified. That is why a cultural enquiry might help, not to solve ecological problems, but to determine the perspectives in which ecological problems arise and to suggest possible remedies towards the adoption and cultivation of more correct perspectives.

Culture and Man

Man is a cultural being. This has been stated succinctly as "Man makes culture and culture makes Man".

Culture is the means through which man humanizes the world and makes it a dwelling place for himself. It is experienced first of all as a network of relationships through which a crowd becomes a community. A community is not a random totality of human beings but a structured whole in which statuses and roles are specified, kinship relations are clarified and regulated, lines of authority and responsibility are laid down, rules of exchange are recognized. It is language and symbol that mediate this transformation from crowd to community. Ritual and celebration express these structures and in doing so confirm them. It is in relationship to such a community — the smallest unit of which is the family — that a person becomes aware of his own individuality and identity.

In the context of this community the world acquires a meaning. It becomes symbolic. It mediates relationships. From being simply material it becomes a human world. It becomes the medium of human self-expression: not only in the sense that it becomes the object of human creativity, but much more in the sense of becoming the means of human self-affirmation and mutual communication. This is the reason that the 'world view' or the way in which Man looks at the world around him meaningfully differs from culture to culture. This meaningful look itself is conditioned by the 'ethos' or the basic attitude, moral tone and mood with which Man looks at himself and his world. This in turn is linked to religion. We shall explore this a little later.

In order to understand the problems connected with ecology and culture we have to specify two more points linked to culture. First of all, culture is communitarian. An individual may be creative. He may play a role of leadership in the community. But the basis of culture is the consensus or convention that establishes the media of symbol systems that not only facilitate, but embody the intercommunication that builds relationships and thus constitutes a community. Language is a good example. Language is a code that at least two people must agree upon in order that communication among them is possible. Yet

each language represents a particular, creative way of articulating and organizing the basic sound units — vowels and consonants — that are available to Man. Even symbols that might seem transcultural, for example, some nature-symbols like fire, water, tree, etc., have a particular contextual reference in each culture. This communitarian nature of culture is specially evident in ritual and celebration. Therefore it is not an individual that creates or constitutes or continues a culture.

The second point that I would like to briefly indicate is the relationship between nature and culture. Culture is not nature. Culture is nature made human. As in the example of language evoked above nature provides the sounds. A particular culture organizes these in particular ways in order to express and communicate meaning. Such organization respects the 'nature' of the material that is organized. In that sense culture is not absolute creativity. A painter has to respect the nature of the canvass, the kind of paints he is using the schemes of colours and forms, the organizational patterns, etc. A sculptor cannot ignore the nature of the material that he is using: wood, stone, plaster, metal, etc.

This dialectic between nature and culture is also true of the human person. There is no natural Man. Human nature is an abstract universal that can nowhere be found existing in itself. The concrete individual is a cultural person: belonging to a community, speaking a particular language, living and operating in a particular symbolic world, governed by a particular worldview and ethos¹.

Culture and Religion

An exploration of the relationships between nature and culture brings in inevitably the role of religion. Clifford Geertz remarks:

Whatever else religion may be, it is in part an attempt (of an implicit and directly felt rather than explicit and

1 Cf. Clifford Geertz *The Interpretation of Cultures* (New York: Basic Books, 1973) pp. 52-53

consciously thought-about sort) to conserve the fund of general meanings in terms of which each individual interprets his experience and organizes his conduct². Is it not religion that determines the way that Man relates to the world, to other human beings and to God? Is not ecology basically a religious problem rather than a cultural one? Some would say, for instance, that ecological problems are the result of secularization. Man has lost a certain regard and respect for nature and sees it purely in utilitarian terms. Hence one speaks of the need to restore a spirituality that is based on creation³. Hinduism and Taoism are said to be more respectful of nature⁴. When one speaks of four types of attitudes to nature, namely pantheistic, utilitarian, dominating and exploitative⁵, one seems to be moving in the realm of religious attitudes. Hence it may be good to delimit carefully the realm of culture with regard to religion.

The religious perspective is obviously involved as an underlying one in so far as Man's relation to nature cannot be isolated from his attitude to other realities like the world, other people and God. Anthropologists distinguish between two levels in religion. Religion begins as a cosmic phenomenon, as the dimension of meaning of reality. It is a cultural system of symbols that roots day to day experience of reality in some sort of world order of which man feels a part — both dependent on it and responsible for it. The ritual of sacrifice expresses and enacts this complex relationship. Religion in this sense is eminently pragmatic: it is linked to life. It offers an explanation or a response or a remedy to daily preoccupations like sickness and death, rain and drought,

2. Ibid, p. 127

3. Cf., for instance, see McDonagh, *To Care for the Earth* (London, Geoffrey Chapman, 1936); Thomas Berry, *Riverdale Papers I* (Mss. New York, Riverdale Center for Religious Research); *Culture, Society and Economics for New World*. Unesco, *Cultures III*, 4 (1976)

4. Cf. Thomas Berry, "Religions, Ecology and Economics", *Breakthrough* 8, 1-2 (1986-1987) pp. 4-11

5. See Sebastian Mier, "Ecología desde la perspectiva del Reino de Dios", *Christus* (Mexico) 589 (October 1985), pp. 46-50

a good harvest or hunt. This may be an utilitarian dimension to religion. Though the whole thing may be enveloped by a sense of the numinous, the day to day existence has to deal with "Spirits" or "Gods" that are somehow immanent to the world process.

But Man's quest for meaning does not stop with this level of awareness and pushes him to discover the transcendent, the absolute, the ultimate dimension of reality. The Indian quest of the Atman-Brahman is typical. This discovery is so astounding that it is experienced as a revelation that demands a commitment—a renunciationⁿ, based on an experience of distance between the "Real" and the "unreal". Thus we have a dialectic between the cosmic and the metacosmic, the pragmatic and the transcendental. Both aspects are inter-related. It is not the question of choosing one against the other. The transcendental underlies the pragmatic and is experienced and affirmed in the pragmatic. The pragmatic is rooted in the transcendental. Though both are contextualised by culture, the pragmatic is very much conditioned by culture. It could be called the cultural aspect of religion or the religious dimension of culture. A metacosmic revelation is inculturated in terms of a cosmic religion/culture.

In the Bible, one can distinguish between biblical anthropology which the Jews shared with other middle-eastern cultures and revelation that was specific to the Bible, but which still had to be expressed in those cultural terms and contexts. In later Christian reflection Greek anthropology took the place of Biblical anthropology. In the field of liturgy at least various other worldviews may have substituted the biblical world view. One can see this in the liturgies for the dead. We have a similar phenomenon in Indian tradition. The basic cosmological-anthropological perspectives of Sankhya-Yoga underlie the speculation and reflection of all the systems, including the Buddhist and the Jain.

The reason for this clarification regarding the relationship between culture and religion is to show that we cannot

speak of culture without any reference to basic religious attitudes and that these religious attitudes are, correspondingly, conditioned by the world-view and ethos of a culture which may not be directly traceable to the elements of revelation and transcendence in every religion, even if these elements always manifest themselves as inculturated in cultural categories.

Culture and Science

Man's relationship to science and technology is analogous to his relationship to nature. It is common for instance in India to confuse modernity linked to science and technology with westernization linked to the impact of western culture(s). This betrays a confusion of science with western culture. Science is the effort to know nature. It is a search to discover the secrets of nature — especially of the material world. It seeks to lay bare the sequence of cause and effect that underlie observable phenomena. Once these laws and structures are discovered, Man seeks to use them in his favour in the production either of goods or of comforts or of instruments of power. Technology is the means that Man has invented/created to manipulate nature and its structures and laws.

Science has never been a pure attempt to know. It has always been oriented by Man's needs — even if, at a very basic level, this need may not be any more than the need to know. Science and technology, in the sense described above, are as old as Man: whether it is the discovery of fire or of the wheel. What is new is the extent and the rapidity of their development in modern times.

In broad terms science too becomes an element of culture. It becomes humanistic. Science is for Man. More than a pure desire to know nature as it is, science, especially technology, is an effort to harness the powers of nature for the purposes of Man. In this sense "magic" is the oldest attempt at science. This attempt to use science and technology for human ends is controlled by ideology. Ideology may be described as an effort at applied science. Clarifying

the inter-relationships between science and ideology, Clifford Geertz writes:

Science names the structure of situations in such a way that the attitude contained toward them is one of disinterestedness... But ideology names the structure of situations in such a way that the attitude contained toward them is one of commitment... Where science is the diagnostic, the critical, dimension of culture, ideology is the justificatory, the apologetic one⁶.

Contrast this with his comparison between the scientific and religious perspectives:

It (the religious perspective) differs from the scientific perspective in that it questions the realities of everyday life not out of an institutionalised scepticism which dissolves the world's givenness into a swirl of probabilistic hypotheses, but in terms of wider, non-hypothetical truths. Rather than detachment, its watchword is commitment; rather than analysis, encounter⁷.

Religion, at the pragmatic level, can become an ideology. An ideology can at times function as a religion. While we need not deny a certain autonomy to the disinterested pursuit of science, science-in-itself is probably as non-existent as nature-in-itself. Science is also an element of culture and cultural patterns, as worldview, ethos, religion and ideology, are 'historically created systems of meaning in terms of which we give form, order, point and direction to our lives'⁸.

Culture and Ecology

We have now laid the ground work for taking up the question of ecology and culture. Culture is a complex of symbol systems that is constituted by world views, ethos, religion, ideology etc. Science, like nature which it investigates, while it has an abstract specificity, is meaningful only in a cultural context. On the other hand, nature,

6. *Op.cit* pp. 230-231.

7. *Ibid.*, p. 112.

8. *Ibid.*, p. 52.

(and today science and technology) is the 'material' which culture seeks to structure, which conditions culture and which culture can ignore only at its own peril. The world-view imposes a structure of meaning on reality as it is seen in relation to human community. It does not have the same objectivity as science in its purity. Ethos determines the values that a community pursues through its life, action and relationships. Ideology is action-oriented. Religion in its pragmatic aspect legitimizes and reinforces the world-view and ethos; in its transcendental aspect it points to ultimate perspectives and plays a prophetic role.

If we understand ecological problems as arising out of an abuse of nature, the only dimensions of culture that have a direct relation to ecological problems are worldview and ethos-ideology. Science and technology are tools. They can be used or abused. The choice to use or to abuse them is not itself made at the scientific level⁹. At the other end of the spectrum, religion as transcendental has nothing directly to do with ecology, because it deals with ultimate realities and meanings. But religion as pragmatic is too closely allied with culture not to be involved with ecological problems. But its function is still one of legitimizing the ethos and worldview of a culture in terms of a transcendent which it has inculturated in a symbolic system that arise out of the world view in question. So the cultural elements that are involved in ecological problems are two: worldview and ethos.

Ecology and Ethos

Ethos, in a culture, is the dimension of humanization, of freedom, of choice, of value.

A people's ethos is the tone, character, and quality of their life, its moral and aesthetic style and mood; it is

9. See Barbara Ward, *A New Creation ? Reflections on the Environmental Issue*. (Rome, Pontifical Commission for Justice and Peace 1973). 'The pure love of scientific discovery may have provided most of the tools. The aims and the uses have been determined by other energies by the worship of what Francis Bacon calls 'the idols of the market and the idols of the tribe' (p.17)

the underlying attitude toward themselves and their world that life reflects¹⁰.

Looking at contemporary societies one can see a whole set of attitudes and value options which cause ecological problems. One could list the following.

First of all there is consumerism that seeks only immediate satisfaction of needs, some of which may be artificially created, without considering the consequences either on oneself, or on the community or on nature. It is short sighted and focussed on pleasure.

Secondly, there is unbridled commercialism, egged on by the profit motive. In simpler terms it could be called greed, both individual and collective. It is ready to subordinate everything else to the one objective of making money as a means of securing more comforts.

Thirdly, there is selfishness, both individual and collective. One is concerned only about oneself and one's immediate community. This may be further complicated by racial, ethnic, and caste loyalties. There is no concern for the global community. The whole world is seen in terms of 'we' and 'they'. One would not mind manufacturing arms and thriving on them provided they are sold to others and serve to kill other people. One would not mind producing sub-standard drugs provided they are sold to the ignorant poor of the third world. One would not mind polluting the atmosphere or the waters with nuclear or other industrial waste provided one's own community is not immediately affected.

Fourthly, there is a lack of respect for nature, its structure and its laws. While one narrowly respects the laws of nature in order better to exploit it one does not bother about the eco-system as a whole. Nature is seen as something to be used, dominated and exploited. It is not seen as something to be humanized, to be lived in, to be appreciated, to be in harmony with. This same attitude is also extended to the body which is Man's link with nature,

10. Cf. C. Geertz, *op. cit.*, p. 127-

It is simply seen as a tool and not as an integral part of oneself.

Ecology and Worldview

Such a choice of values is rendered more easy by the kind of worldview that has developed in the West which has seen the phenomenal growth of science and technology in recent years. It is basically a dichotomous worldview. The dichotomy extends everywhere and at all levels. The dichotomy between the 'soul' and the 'body' shapes the attitude to matter which is seen as something out there. The dichotomy between God and the world promotes a secular view of the world that seems to remove it from the sphere of values. The dichotomy between the individual and the community encourages a selfishness that sees the other as an enemy, to be exploited and dominated if not overcome. Globally this is the process of secularization that cuts off reality from religion, both pragmatic and transcendental. The situation becomes complex when one seeks religious legitimation for this process.

The relationship between Man and nature becomes one of domination and exploitation. This attitude is justified in terms of the creation story in the Bible where the earth is created and man is made lord over it. This may be an improvement over the perspective that saw nature as the embodiment of divine forces or spirits. But it has gone to the other extreme of making nature so different and distant as to become alienating. The Biblical worldview, by making work a punishment for sin, has made earth man's enemy. How much of this perspective is the reflection of a people living in desert conditions? This negative attitude to the world is also extended to the body. Matter (body) is seen as evil, as a prison for the soul.

The autonomy of the secular world is often justified as a moving away from a 'pantheistic' perspective. One would even attribute the growth of science and technology to this process of secularization. While there is an element of truth in this claim, as a matter of fact, in the West, autonomy has become independence. In practice, technological,

political and economic structures follow their own laws, not controlled by any ethical principles. Man has become the slave of his machines. It is a new kind of idolatry where Man is hesitant to challenge the structures that he himself has created, especially when they are economically and hedonistically beneficial to oneself. Once created they acquire an independence such as one wonders today whether Man can control them at all — particularly when we look at their global outreach and character on the one hand and on the other the internal division and the lack of will that plague the human community.

This leads us to the third group of problems: the alienation of Man from Man. Individualism seems to be one of the characteristics of the modern world: each one for himself — the other is my enemy. Self-assertion is the preferred value. Contemporary trade and economy is based on the exploitation of the other, based on his needs and weaknesses. Collective selfishness in the form of class or national or ethnic solidarity may give the appearance of collaboration. Even public order may be seen as providing a peaceful atmosphere where each one can pursue his own ends rather than as expressing concern for the welfare of the other. More importance is given to having rather than being.

None of these options — metaphysical and ethical — can be derived from Christian revelation. They are not natural either. This is the way the people in the West have constructed their world and shaped their way of life. They are communitarian and cultural in character. There is an element of ethical and religious choice. But this choice has been built into the structure in such a way that an individual would not only not feel responsible but rather feel helpless in the face of a new way of life. Moreover these options may be legitimised in religious terms not that of Christian revelation but that of a Christianity inculturated in Greco-Roman and European culture further complicated by the challenge of science and modernity.

Indian Culture and Ecology

The tradition of Indian culture offers a holistic perspective that may be helpful in tackling ecological problems. I do not mean to say that ecological problems do not exist in India. But while the prevailing cultural trends in the West seem to sustain and support such problems the Indian tradition seems to offer an alternative, even if this alternative is not always used adequately. One reason is that in taking over science and technology one also adopts unconsciously, without reflection, western cultural perspectives which I have tried to outline above. In other words one fails to 'inculturate' science and technology. A reflection on Indian cultural tradition from this point of view may precisely help us to promote such 'inculturation' and in the process solve some of our emerging ecological problems.

The Indian — as the Oriental — cultural tradition may be described broadly as holistic. Man's attitude to nature is neither one of subjugation, nor one of domination and exploitation, but one of harmony. Every attitude and activity is governed by the universal law of Dharma which assigns to each one and to each reality its proper place and role in the totality. Man's duty is not only to be faithful to his own role and responsibility, but also to uphold Dharma. *Lokasamgraha* or the maintenance of the world is a basic aim of life — especially in a religious context. Between pantheism, which one too easily attributes to Indian and Oriental traditions and secularization which is a Western import incongenial to the East, the Indian tradition has developed a sense of harmony based on concern, respect and non-violence. We could evoke a certain number of ideals that govern life in India that cumulatively illustrates this attitude.

In the Dravidian traditions of Tamil Nadu Man was very close to nature and sensitive to its variations and its impact on human life. It was customary to divide the country into five typical areas: the mountains, the forests, the fertile fields, the sea shores and the deserts. The style of life, the moods and emotions, the relationships, the type of music,

dance and the arts and even the Gods were differentiated according to the different geographical areas. This is more than a literary convention and betrays a sensitivity to nature and its impact on life and relationships that is extraordinary. One can still find echoes of this tradition in the list of *Ragas* in music considered appropriate for particular seasons or times of the day or night and in the *Ragmala* paintings that evoke the mood characteristic of a *Raga* in terms of a life-situation.

The discovery of the Absolute in terms of the Atman-Brahman has enabled the Indian tradition to steer a middle course between sacralization of natural forces in the form of Gods and/or Spirits and secularization that looks on nature simply as an object that almost calls for exploitation and domination. There is a respect for all forms of life, a sense of the divine in all things. This gives rise to an attitude of non-violence which finds positive expression as concern for everyone, especially as *karuna* or *maitri* in the Buddhist tradition.

There is a sense of universal order or Dharma that provides a holistic framework to life in many ways. The schemes of the four *purusharthas* or 'ends' of life, namely righteousness, wealth, pleasure and liberation and of the four *ashramas* or stages in life, namely student, householder, forest-dweller and *sanyasi*, indicate an awareness that does not cut life off from the world and community. The ideal of *lokasamgraha* or world-maintenance in which each has role and to which each makes his contribution, as expounded by texts like the *Bhagavadgita* underlines a sense of social responsibility that is inspiring. The practice of *panchayagna* or five sacrifices in which the householder is expected to make daily food offerings to the Gods, to the Ancestors, to Guests, to the Animal world and to the Self manifests a universal concern.

The practice of yoga promotes integration, not only of the body and spirit in Man but also of Man and the world. The control of the body through posture, of the

emotions by the breathing, of the mind through concentration and of life through ethical discipline, promotes Man's holistic well-being. In forms of the Tantric yoga this spirit of integration reaches out to include the world.

Evocation of these ideals in modern times show that these traditions are not merely things of the past but have a continuing relevance to life in India today. I do not have space to illustrate elaborately this observation here. But to any one familiar with the history of India in the twentieth century the names of Aurobindo, Tagore and Gandhi are enough to recall these holistic perspectives. Aurobindo promoted the pursuit of integral yoga, which some of his disciples sought to translate in terms of a holistic life in community (in Auroville). Tagore tried to promote a system of integral education, particularly related to nature and art. Gandhi propagated a humanism that made Man, not the machine, the measure of life in the world. He also emphasised the ethical dimension of life in community through such principles as *Ahimsa*, *Sarvodaya*, Trusteeship of all earthly goods in favour of the human community as a whole, etc. Gandhi also tried, unsuccessfully, to promote appropriate technology with a constant call to humanize it.

Conclusion

By way of conclusion I shall limit myself to four observations, the last two of which have a direct cultural reference. First of all, ecological problems are not caused by science and technology, but by the abuse Man makes of them and this abuse may have its origin, apart from immediate wrong choices that he makes, also in the worldview and ethos that Man has created for himself in creating culture. Secondly, in taking over the tools of modern science and technology from the West, one need not adopt their worldview and ethos. Nor simply identify them as inevitable products of science and technology. This is particularly true of secularization. Thirdly, this is why we have to set science and technology in the living context of a basic humanism that

affirms that science and technology are for Man. Finally Man himself must be seen, not in individualistic terms, but as an integral part, though with proper rights and responsibilities, of the human community as a whole living in harmony with the world, in a perspective of Dharma. The Indian cultural tradition has a very positive contribution to make in developing such a perspective.

Rome

M. Amaladoss

Nature and Human Survival

Dachau, Auschwitz, Hiroshima, Nagasaki - these are names of horror by which the twentieth century will be remembered by future generations. They are symbols of human barbarity. Of late, two more names have been added to this ignominious list — Bhopal and Chernobyl. They are signs of the deep contradiction in which human life is enveloped today. For, the very gigantic, scientific, industrial and technological achievements that are supposed to liberate humanity from hunger and disease, and assure a secure life have, ironically, been turned into the most lethal weapons threatening human existence. Like the proverbial fool cutting the very branch on which he sits, Man is destroying the very foundations of his survival, of his sustenance. But what is most tragically foolish is the watching of this sight by so many 'good' men and women with a myopic admiration for the precision with which this operation is done!

The ecological issue has become today an issue across the borders, a planetary question — a question about our planet, its use and abuse. There is, however, a marked difference in the way the ecological question is posed in the West and in the poor countries of the Third World. In advanced industrialized nations, the concern with ecology came to the fore as people began to realise the speed with which natural and non-renewable resources were getting depleted through industrial and technological expansion. They were alarmed at the dangers posed by the environmental pollution caused by industry. Deep down there was the anxiety that the prosperity and well-being they enjoyed might be endangered. For the poor millions of the Third World, ecological question is, instead, a question of their very life and survival. For, the problem of poverty, destitution and

misery is inextricably bound up with the question of nature, and the way Man relates himself to it, the way he uses and controls its products.

This article proposes to deal with three aspects of the question in three parts. In the first part, I shall briefly point out the ecological problems as experienced in India and in the Third World at large and how it hits the poorest of the poor. In the second part, I shall deal with some ethical perspectives relating to ecological issues, and conclude with the type of response called for today towards solving ecological problems. In the third and final part, attention will be focussed on one or two theological key-issues underlying contemporary ecological problems.

Part I. Ecological Issues

There is a general feeling of complacency that we have in India cleaner air, and more forests and much less of the smoke emitted by Western industrial complexes. We illude ourselves if we are led to think that ecology is not a serious problem in India. This must be said because there is widespread lack of realization about the alarming proportions of the ecological problem and its urgency in the country, and a disconcerting apathy about the whole issue.

The range of destructions

Where do our ecological problems lie ?

First of all there are a whole range of questions relating to the destruction of nature and pollution of the environment with their consequences. If floods are increasingly affecting the life of the people in North and North-Eastern parts of India, it is, in large measure, due to the massive deforestation that has been taking place. Denuding the forests and felling of trees tell upon the soil and affect their capacity to hold back or arrest the flow of water that cause soil-erosion and inundate the plains, causing destruction of life and properties. In Rajasthan¹ and in Western Ghats massive deforestation has led to desertification of lands. Closely connected with all

1. Cfr. "Sariska - Wild Plans", in *India Today*, February 15, 1986, p. 146

this is the serious disturbance of environment caused by the spate of hydel projects, construction of power houses etc. The projects are realized at the cost of large areas of forests, disturbance to wild-life, and displacement of lakhs and lakhs of traditional inhabitants of these areas, specially the tribals. Such is the case with the Narmada hydel projects² affecting Gujarat and Madhya Pradesh where 1.2. lakhs of Adivasis are displaced with poor or almost nil compensation to the loss of their lands. Similar is also the case of hydel-electric projects of Kerala government in Munnar³,

Then, there is a host of deleterious effects produced by the growing process of industrialization in our country trying to 'catch up' with the Western developments. The basic elements which are needed for support of all life — air, land and water are polluted in many ways. Discharge of untreated effluents from many industrial and chemical factories flow into rivers leading to decline in fish-yields. Effluents of all kinds from the industry turn agricultural fields into barren lands, thus wrecking the life of poor farmers. They affect also cattles. Not in few cases this chemical effluence seeps into the ground turning the drinking water of wells into saline water, not safe for drinking.

To cite some examples⁴, in Tamilnadu, the tanneries in Vaniambadi area, North Arcot district, have ruined over 46000 hectares of land and over 2000 wells which have become saline. The factories at Tungabadra river like the Gwalior Silk Manufacturing company emit so much of untreated effluence that the fish-yield has declined to 75%, and is causing skin and respiratory diseases. Similarly 12 million

2. Cfr. 'Narmada Project: Churning Controversy', *ibidem*, May 31, 1987, pp 164-165; cfr. also Claude Alvares and Ramesh Billorey, "The Dammed", in *The Illustrated Weekly of India*, November 1, 1987, pp. 8-17

3. Cfr. "Kerala: Power Struggle", in *India Today*, January 31, 1983, p.54

4. Cfr. 'Tanneries. Slow poisoning' *ibid*, November 30, 1987, pp.144-149; cfr. also 'Karnataka: A notable triumph', *ibid*, April 15, 1987, p. 146; 'Rajasthan: Stream of Destruction'. *ibid*, August 31, 1985, p. 133; 'Dhrangadhra: Dangerous Discharge', *ibid*, May 15, 1984, p. 142; 'Kesoram Rayon Factory: The invisible menace', *ibid* June 30, 1984, p. 142

liters of effluence per day from over 700 textile processing units along the Bandi River in Rajasthan have turned the water of the river inappropriate for irrigation leading to failure of crops in many villages along the river. Similar is the case of Dhrangadhra Chemical Water in Gujarat and Kesoram Rayon Factory in Calcutta.

Nature, evidently, has got a certain so called 'carrying capacity', that is capacity to absorb pollutions. This capacity is today being overstepped or stretched too far placing in jeopardy the land, water, food, air and life itself. The hazards to the health of human beings is particularly remarkable. The poisonous gas let out from chemical industries has caused serious respiratory diseases, breathing troubles, gastroenteritis etc. Some of the chemical industries turn the whole environment around into a veritable gas chamber.

Resources debarred

A second complex or ecological problems bears upon the debarring of the masses, specially the poorest of the poor, from having access to the resources of nature. The process of industrialisation and the sucking of natural resources to feed factories have left the poor empty and hungry. They are increasingly deprived of the resources on which they traditionally depend for their livelihood. It may be pointed out here by way of example that more than 80% of the inhabitants of the forests rely on the minor forest produce (MFP) to satisfy 25% to 50% of their food requirements. In Orissa not less than 15% of the forest dwellers depend solely on the reserves of the forest for the same purpose⁵. The basic needs as food, fire-wood, or cooking energy fodder for cattle, the raw materials for handi-crafts have all slipped away through their fingers and what remains is a deep sense of helplessness. The forests from where they collected firewood, the common fields where they could let their cattle graze or collect fodder

5. The State of India's Environment 1984-1985 - The second citizen's report, Centre for Science and Environment, New Delhi: 1985, p. 91

have all been now denied to them. These have become the possessions of the privileged groups or of the government.

There are several reasons for this unjust state of affairs. The bounteous gifts of nature in this land go first and foremost to satisfy the demands of industry and the production of consumer goods. They are directed to cater to the urban needs, causing in its wake rural exodus of the impoverished. There is, further, commercialization of natural resources. What determines the relationship of human beings to the products of nature is not needs but the economic profit they bring. For example, while peoples' needs for food and cooking energy would call for certain types of plantation, we assist at the plantation of cash-crops like eucalyptus trees.

All this reflects the past practice of colonial powers and the present relationship of the rich industrialized countries vis à vis the poor nations. In the past, the economic and commercial needs of the colonial powers determined the flow of raw materials from the colonies, which ultimately led to the ruining of the economy of the poor nations and the creation of the Third World. Today the situation is not very different. The exploitative and unjust trade relationships bring it about that the poor countries have to sell their raw materials and natural resources, and even food products (leaving millions of innocent children to starve) in order to be able to acquire industrial goods and technological expertise. As a matter of fact, today the rich and industrial nations which form only one third of humanity consume 83% of all material resources of the earth, leaving only 17% to the two third of humanity constituting the poor nations of the Third World⁶.

Those most hit by this exploitation of natural resources and their commercialization are the poorest of the poor in our society. In rural areas the landless groups

6. For more details on how the western countries profit from the resources of the Third World countries, cfr. Ranjit Adhikari, 'Beyond Bhopal: Transnationals and Environment', in *Mainstream*, March 1, 1986, p. 10

and in forest areas the tribals are thrown into a crisis of survival. In cities, the poor and the marginalized living at the periphery of urban life in crowded slums or on pavements, have practically no access to the resources with which cities are fed, but live practically on the waste and on crumbs of industrial and consumer production.

To realize how the above mentioned complexes of ecological problems affect our unprivileged brothers and sisters, it is enough to recall two facts: The tragedy that struck Bhopal on the dark night of December 3, 1984⁷ claimed mostly the lives of the poorest sections, and caused among them most cases of disabilities. The poisonous gas Methyl Isocyanate (M. I. C.) swamped the huts and shanties of the ill-protected poor. We could form some idea of how much the poor are affected by the lack of natural resources and by environmental destruction, if we think of the ever increasing time and work the women in the villages have to spend to collect fire-wood, water and fodder. In some regions the women have to spend even 10 hours only for this purpose, and have to trek long distances and climb steep hills and mounts⁸.

Part II. Ethical Perspectives

Faulty development

What lies behind the environmental destructions and the deprivation of the poorest sections of the society from benefitting by the produce of nature, is a particular model of human development and a highly questionable ideology of human progress. Here, development is intimately linked to science and technology as instruments to dominate over nature and exploit it. It would be anachronistic and ridi-

7. Cfr. 'The City of death', in *India Today*, December 31, 1984, pp. 4-16; cfr. also *The State of Indian Environment 1984-85*, op. cit., pp. 236-262; Praful Bidwi, 'Social Implications of the Bhopal Catastrophe', in *Social Action*, October-November, 1985, pp. 351-368.

8. Cfr. Geeta Menon, 'Tribal Women, Victim of the Development Process', *ibid*, October-December, 1987, pp. 373-390. Philip Viegas and Geeta Menon, 'The Social costs of Deforestation', *ibid*, October-December, 1985, pp. 323-350.

culous to discount the place science and technology have come to occupy in human life, and suggest as ideal the kind of relationship of Man with nature that existed before their advent. Technology and science are expression of human ingenuity and they offer possibilities of greater humanization. Nobody can seriously dispute these points today. But what is most dangerous is the equation of technological progress with human progress. At the root of such identification we can discern a kind of technological *chiliasm*⁹ — a dangerous belief that we have reached the final, the eschatological period of human history with the arrival of the 'Messiah' of technology who will save everyone and all nations. The *ideology* of development behind the crisis of our environment is the myth of unlimited progress. The *panacea* for all human ills and wants is the maximization of production. The *paradigm* for this development is the Western society, the symbol and acme of human growth and progress. The Western scientific and technological society is seen as the third and final stage of human history as propounded by Comte¹⁰ — after humanity has passed through metaphysical (pre-scientific) and religious stages.

This model of development, this myth and chiliasm concerning science and technology have led to the erosion of the human and banishing of all ethical perspectives from societal living. It has created a convulsion and destabilization in the relationship of human beings to nature and to their environment. The drive to maximize production has led to using up the non-renewable sources of energy at an alarming degree. It has given rise to a pervasive culture of consumerism and a 'throw away' life-style. With progressive reliance on the machine it has growingly dispensed with human being and has made the poor re-

9. Cfr. J. Moltmann *Men. Christian Anthropology in the Conflict of the Present*, Fortress Press, Philadelphia 1974; cfr. also H. Marcuse, *One Dimensional Man*, Beacon Press, Boston 1966.

10. Cfr. F. Copleston, *A History of Philosophy* Vol. 9, Part. I., Image Books, New York 1977, pp. 93ff.

dundant or an unwanted lot. The determination to pursue the myth of unlimited progress along with the deep fear of insecurity of losing its present gains has taken the form of colossal production of arms to protect and defend, more than the people, the machine and economic interests. The depletion of the natural resources and energy are made good it is believed, by promoting nuclear energy programmes, in spite of all the lethal consequences in its production, maintenance and waste-disposal.

The present ecological crisis brought forth by a ruinous model of development appropriating science and technology to its ends cannot be solved by minor technical solutions. It cannot be solved by simply reducing the rate of growth, by anti-pollution legislations etc. These cosmetic solutions are far from adequate for grappling with the magnitude of the crisis that weighs heavily on the lot of the poor and the poor nations. What is required is a basic re-orientation in understanding human progress and in defining human needs. These need to be impregnated with ethical considerations. There should be a break from the understanding of human progress in terms of quantity to quality of life. True human growth and progress cannot be achieved except when considerations of justice and equality are in-built into it. Such a progress would call for subordination of science, technology and production to human purposes and social goals. It entails, further, the production of essential goods to satisfy the needs of the many rather than to squander the resources of nature and energy to gratify the greed of the few through production of luxury goods.

The problem ensuing from the environmental question leads us to another series of ethical considerations.

Control of resources

In spite of all dangers to our environment and the social costs, this mode of development is pursued because the control of natural resources, science and technology and the levers of power are in the hands of a few — advanced industrial nations and the elites of the poor nations. Science

and technology are ambivalent. Whether they serve the advancement of the human race and promotion of justice and equality depends upon who controls them. We should realize the intimate linkage in today's world between the conquest of nature through the process of technology and science and the domination of Man over Man. The domination of Man and his oppression through science and technology are a sign of their misdirection and misappropriation by a few.

Science and technology are not neutral and value-free. They are bent to reinforce political and economic institutions and structures. It is enough to think that the decision to put a human person on the moon by 1970 was not a decision by experts in space-science, but a political decision by President Kennedy, or to think of the intimate connection between big business and highly sophisticated and scientific and technological research¹¹. The context in which science and technology operate is an economic and political context. In other words, what is projected in science and technology as 'objective' and 'neutral' is, in effect, 'objective' in respect to determined subjectivity—privileged nations and groups to whose interests they are diverted and to whose domination of nature and other human beings they become instruments.

The preservation of the life-supporting environment and the issue of justice intimately connected with it, are of such deadly seriousness for the well-being of humanity, that they cannot be simply left to the whimsy decision of political powers and economic interests, and not even to experts. The ethical responsibility of preserving our environment and fostering justice rests on the entire community of people. In the decisions concerning the use of technology and science, there must be participation of the people. For whether science and technology hold out promise or threat, life or death, depends upon these decisions.

11. Antony Wedgwood Benn, 'Technical Power and People: The Impact of Technology on the Structure of Government', in Charles Birch et al. (ed.), *Faith, Science and the Future*, WCC, Geneva 1973, pp. 177-184.

One may wonder whether people are capable of deciding on such specialized matters as science and technology. Are these not beyond their understanding and reach? Though in technical aspects the experts may have the competence, nevertheless, inasmuch as science and technology represent power, they need to be checked by the people and subjected to their decision. Any unchecked power is destructive. People must check whether the application of scientific knowledge serves military purposes, production and piling up of arms, or life-sustaining purposes.

We could draw a certain parallel between the process through which the democratic institution emerged in modern history and today's situation in relation to science and technology. In the early stages of the development of democratic institution, there was the idea that political decision should rest with the propertied, with the educated etc. But subsequently it was realized that political power must be exercised by the whole community, and thus the universal franchise was born.

Similarly today one tends to consider science and technology as the preserve of experts. But the conservation of our environment can take place only when we move from the control of science and technology by a few to decentralization, to participation by the people themselves in this process. Today those who control natural resources, the use of energy and the application of science and technology, are also the ones who condition the political power and its exercise. Hence the effective participation by the people in making decisions concerning environmental question, and the use of science and technology are of crucial importance also for the right functioning of democracy and political power. In the concrete, in India the decision to go for high-tech., computerization etc. are not decisions of the people, the majority of whom would have other priorities. Only through peoples' participation in environmental questions, the primacy of social justice in political, economic relationships in society can be guaranteed.

The irrational rationalization

Why have this faulty model of development with its control of resources turned out to be impregnable? It is because it has posed itself as *rational*. Science and technology, domination over nature and exploitation of its resources and organization of social life — these follow a certain line of rationality. This is a rationality associated with domination¹², a rationality that forecloses the space of freedom from the poor and the less privileged. It is a rationality of and for domination. A baneful irrationality is camouflaged as highly rational.

Reason has two dimensions: Reason is power. On the other hand, reason is also freedom. It should serve the goal of liberation. It is meant to serve man to free himself from all dominations and powers. But the present situation of domination over nature has become an affirmation of rationality or power while jeopardizing the freedom — both of the dominators and the dominated who are turned into slaves. Therefore it is a rationality that is suspect. In the concrete, this rationality is manifesting itself as irrational. When there is deep inequalities under the guise of high rationalization, and when freedom is compromised, there is no place for ethical values. The present form of oppression and exploitation of nature coupled with the marvelous progress and achievements in the field of science and technology is a seductive irrational rationality. It is a rationality to justify, legitimize the domination and exploitation, and therefore a crude and barbaric form of irrationality.

To make concrete what I am saying, let me give some illustrations. In the concentration camp everything can be so well-ordered and planned rationally, but that does not make the concentration camp itself any less irrational and brutal. Or how could we call rational any development or human progress which allows so many millions to suffer

12. Cf. Herbert Marcuse *One Dimensional Man*, op.cit., cfr. also *Id.* *An Essay on Liberation*, Beacon Press, Boston 1969; *Id.*, *Counter-Revolution and Revolt*, Beacon Press, Boston 1972.

hunger while allowing a few to enjoy domination and control. Is it not irrational to spend so many millions and billions for armaments while innocent children are deprived of a bowl of rice? But unfortunately today any critical questioning of this exploitation of nature and its control is labelled as irrational and those concerned about preservation of nature as 'environmental-fundamentalists', while the 'rationality' of the established order and path of development passes for high rationality and sanity. It is the case of a group of mad men consigning to the asylum a sane man for treatment!

India and other Third World countries are drawn into this irrationality in the name of modernization, progress, technology and science. A process of modernization that bars access to natural resources essential for the life of the poor and pollution of the environment of human beings can in no way be rational.

Response

How do we respond to this environmental question? The environmental crisis unleashed by the over-exploitation of nature through the help of technology cannot be solved by technological solutions. It requires a resistance on the basis of moral and ethical principles, and nothing less than radical re-construction of the prevailing socio-political and economic order. Without the re-establishment of justice in social, economic and political realms there can be no real solutions to the environmental crisis the humanity, specially the Third World is facing.

Our response should take into account two developments that have come about in respect to the faulty universal model of human progress, control of power and the irrationality they harbour.

First of all the technological chiasm about which we spoke is in fact, giving place to a serious concern, fear and anxiety about the myth of limitless progress and the capacity of technology to give solutions to all economic and social problems of human community. The myth of

endless progress is today being exploded. Such reports like that of Club of Rome in 1972 has brought about a sense of sober realism upon enthusiasts who had pinned their hope on ever greater human conquests. It has brought about the realization that there are 'limits to human growth', that it is not possible to go on, on the same path without seriously endangering human life on earth. This whole anxiety and fear about the future was sharpened when it was associated with the question of explosion of population and the fast depletion of non-renewable sources of energy.

The second development we should take into account is a kind of romanticism that was born as a reaction to the modern advanced industrial society and its sub-culture. It has been expressed in the form of a longing to return to the simplicity of the life in the past and its immaculate beauty. It is an aspiration to break out of the colourless monotony of a culture made of machine and the endless cycle of production-consumption-production, and to take shelter in a world of spontaneity. The beatles, hippies, pranks and many other youth movements in the West, the counter-cultural movements, peace and environmental movements — all form part of the romantic response. They have had little impact in terms of radically challenging and re-orienting the advanced industrial society and its culture.

On the other hand, the huge apparatus of industrial society has been able to keep all these movements at bay by offering some ecological palliative such as some anti-pollution measures, creation of some pockets of greenery, wild-life preserve etc. to be able to go ahead undaunted on its path. All these movements including the nature-ethic and reverence for life proposed by Albert Schweitzer¹³ are fundamentally bourgeois in character. They do not touch the heart of the ecological question, the issue of domination and the question of justice.

The seriousness and urgency of the ecological situation characterized in India and the Third World at large

13. Cf. Gunter Altner, 'Wahrnehmung der Interessen der Natur', in K.M. Meyer-Albisch (ed.), *Frieden mit der Natur*, Herder, Freiburg 1979, pp. 112ff.

makes all such romantic responses too weak and inadequate. What we require are peoples' movements at micro and macro levels which will challenge radically the imitative advanced technological society that the elite and rulers want to turn India into. We need movements which will, on the basis of justice, question the logic of domination operative in our society, and which generates ecological problems in India and bars the poor from having access to natural resources. We need movements which will help to subordinate technological developments to the goals of justice, to the production of essential goods for the livelihood of the poor and the disprivileged.

But fortunately we have in the country a significant ferment of ecological consciousness mounting up from below. The main protagonists are the victims of exploitative ecological policies and practices. Waves of protest to vindicate the establishment of ecological balance are observable in almost all parts of the country. There have been a number of instances where the popular initiatives and protests have had a strong restraining effect on the planners, economic vested interests and others¹⁴. We should single out in this context the *Chipko* movement. *Chipko* means hugging. It is a movement which has as its objective the protection of trees from the rapacious economic interests by 'hugging' them. Women have played a very active role in this movement¹⁵. Similarly *Appiko* movement also has been very effective against deforestation.

Besides such protests against anti-ecological practices and policies, the peoples' movements should direct their attention towards the use of alternative renewable sources of energy and devising of appropriate technology. Every

14. Smitu Kothari, 'Ecology vs Development, The Struggle for Survival', in *Social Action*, October-December 1985, pp. 379-392; cfr. also 'Environment and People: Report on Gandamardhan Mines', in *Mainstream*, November 8, 1986, pp. 33-34; 'Karnataka: A notable triumph', in *India Today*, April 15, 1987, p. 146.

15. Cfr. Anupam Mishra, 'The forest cover', in *Seminar*, no. 237, May, 1979, pp. 26-29,

technological planning and intervention must be evaluated in terms of its human and social costs. In all this, collaboration among the people, scientists, technicians and theologians and all those concerned with the conservation of nature and the survival of the poor is of paramount importance. Such a co-operation will help to give flesh and blood to ethical ideals relating to the preservation of environment.

Part III. Theological Reflections

The ecological crisis we are confronted with and our ethical tasks force upon us the necessity of some theological reflections on certain key-issues. They call for fresh theological perspectives and orientations in regard to the relationship of Man to nature, and more basically the interrelationship of God-Man-Nature.

Judeo-Christian roots

Confronted by the global environmental question, and the crisis of survival, we tend to ask whether and to what extent the Bible and the Judeo-Christian tradition, at large, are able to provide us with elements for overcoming this situation. It has been a widespread thesis and general persuasion that the development of modern science and technology, inspite of the conflicts between science and faith reminiscent of Galileo, owe ultimately their origin and impetus to the Biblical tradition. This is so because, Bible has de-mythologized nature and its powers, and has de-sacralized the world¹⁶. This has to be understood against the background of the World of Biblical times — West Asian, Hellenistic and Roman — where the powers of nature were divinized and were seen as endowed with sacredness. As long as such conception of nature prevails there is no room for the advancement in science, for modernization and human progress.

This contrast applies not only to the Ancient west Asian and Mediterranean peoples, but also to all other peoples, including the Orientals with their traditional religions and nature-bound world-visions. The underlying assumption is that the Judeo-Christian tradition alone has been and is capable of producing the marvellous achievements in the field of science we have witnessed in the last few centuries. It is this euphoria for the modern world with

16. Harvey Cox, *The Secular City*, Macmillan, New York 1966; pp. 22ff., cfr. also Johannes B. Metz, *Theology of the World*, Herder, New York 1969; John Macquarrie, 'Creation and Environment', in *The Expository Times*, 83 (1971) pp. 4-9.

its roots in the Bible that gave birth to a rather short-lived theology of secularization as propounded by Friedrich Cocarten¹⁷, A. van Leeuwen¹⁸, Dietrich Bonhoeffer and others.

Along with the whole idea of secularization of nature and the world there is an aspect of Biblical anthropology which has been invoked in support of human progress, exploitation of nature and its resources. This is the idea of *dominium terrae* — domination of the earth entrusted to man according to Gen. 1:26 (cfr also Ps. 7:4-8). Man is not one who is subject to the process of nature, but its master. He is the crown and the centre of creation, the image of God, the one for whose sake all that is has been created.

The picture does not end with the glories of human ingenuity. The present world scene manifests woeful technological and scientific developments, capricious manipulation of all kinds including genetic, and the ominous prospects of a cosmic conflagration.

The promethean enterprise of Man with science and technology is leading him to the brink of self-annihilation by the destruction of his environment. The Man to whom the domination of the earth was entrusted has become the slave of his handiwork — the machine to which the human character of dominion is more and more attributed. It is symptomatic of this development that the *Man of the year*, Time Magazine proclaimed for the year 1982, was the computer.

Now, if the Bible is credited with the birth of modern science, technology and their great achievements, the question is inescapable, which vision of nature and man is responsible for this state of affairs that has thrown the whole world into deep process of dehumanization. Has an enemy planted cockles (cfr Mt. 13:18), while we were mesmerized by the fascination of modern achievements, and have we only to weed out the cockles and let the system go ahead? Has not perhaps, the very idea of desacralization and dominion of Man over earth, also been responsible for this development? Not few historians and theologians today tend to maintain that the Biblical vision

¹⁷ Friedrich Cocarten, *Der Mensch Zwischen Gott und Welt* Stuttgart 1963, 14., *Verhangnis und Hoffnung der Neuzeit. Die Sakularisation als theologisches Problem*, Stuttgart 1959

¹⁸ A. van Leeuwen, *Christianity in World History*, Edinburgh House Press, London 1964, pp. 331ff.

is responsible for the ecological and environmental problem we are facing today. The foremost representative of this thesis is the historian Lynn White¹⁹.

Before saying anything about this indictment, we have to take into account another dimension of the Biblical vision, that has been left in oblivion. It has been conveniently forgotten that this conception of the secularization and the dominium terrae served to legitimize all that Man did to the planet earth because it is a desacralized object, an object to be dominated. The other dimension is the role of Man as the one who bears responsibility for nature, as the one who cultivates and preserves nature (Gen 2:15,5) and in this process sustains himself by its produce²⁰. The Bible speaks of a covenant not only with human beings but with the whole creation - plants, animals etc (Gen. 9:3-17)²¹. This vision goes beyond an instrumentalization of nature to Man's own ends which he can do so brutally and irresponsibly, and admits the goodness and beauty of creation. It recognizes a value for creation and nature in themselves and not necessarily in relation to Man.

Further if we probe into the Biblical tradition, we will find that the central point in creation is not the idea of bringing some thing into existence out of nothing (*ex nihilo sui et subiecti*). Dogmatic preoccupations have led to interpret the Biblical account in this sense. For example, in the Hebrew expression *tāh wā-bāhā* in Gen 1:2 one wanted to read the 'void, nothing'. The Biblical scholars today tell us that this expression means a *formless waste*²². The Biblical creation lays emphasis on the transformation of 'formless waste' into meaningful forms rather than a creation coming out of void or nothing. It says similarly that in creation, God changes the barren land (for the land was there before creation) into fruitful, fertile, habitable land and places order where chaos and disorder reigned (Gen. 2:4-6: 1:1-2). This understanding of creation is very central in ecological and environmental questions. The ethical responsibility of Man consists in continuing God's work of creation by continuously transforming the earth, by tilling it and making it ever more

19. Lynn White, 'The Historical Roots of our Ecological Crisis', in Garret de Bell (ed.), *The Environmental Handbook*, Ballantine, New York 1970.

20. Claus Westermann *Genesis 1-11*, Neukirchener Verlag, Neukirchen 1974. Cf. also E.A. Speiser, *Genesis*, Anchor Bible, Doubleday & Company New York 1964.

21. John Macquarrie, 'Creation and Environment', art. cit., p-5.

22. Cf. E.A. Speiser, *Genesis*, op. cit., pp. 3ff.

livable one, livable not only for himself but also for the whole nature.

Complementary vision

In the light of what we have said above, the thesis that Biblical tradition is responsible for the present day environmental disorders and faulty economic developments cannot be fully upheld. Nevertheless it may be difficult to maintain that the Bible is entirely free from all ambiguities in matters pertaining to Man's relationship to nature. At this point I would like to suggest that the Judeo-Christian tradition stands in need of being complemented by other world-visions and anthropologies. This complementary vision is required today to clear off any possible misunderstanding of and ambiguity in Biblical witness.

This complementarity could be effected in two directions. First of all we should reach the level where the roots of the whole question lie. It is the question of how we view the reality of inter-relationship between God-Man-Nature. In Judeo-Christian tradition the personal dimension of God and his transcendence is central. It is from this personal God and a causative act of his will that the creation proceeds and comes into being. This view when coupled with the thought of *dominium terrae* can turn world and nature into an object estranged from God and his mystery. There can come about a dualism of God and nature.

The category of person is adequate neither to express fully the mystery of God nor to interpret His relationship with the world and nature. The nature is much more closer to God and his mystery than simple objects which are brought into existence by an act of will. It is imperative today, in the context of the ecological question, to underline the immanence of the divine mystery in the world, in nature and to confess the *sacredness* which is due to nature and world — the sacredness which reflects the Divine. Recognizing this sacredness, the sacramentality and the mystery of nature, the world or the secular is not to undermine the place of human beings. Rather it is by admitting the sacredness and sacramentality of nature in its intimate relationship to the divine mystery, that Man truly humanizes himself. For, the humanization of Man cannot take place apart from the horizon of the divine mystery in its intimate relationship to nature.

In other words, the relationship between God and

nature must be more intimate than what is made out to be when God is spoken as personal and the world understood as a product of his will. There is a participation of world and nature in the mystery of the divine reality. This is not pantheism or monism.

The finding of a theological framework for the relationship of God-Man-Nature is a very delicate one. It is a narrow path that runs between dualism and a monism where nature itself would be identified with the divine mystery—*natura sive Deus*. However, since historically the tendency of dualism has prevailed to divest nature of all sacredness, sacramentality, thus giving rise to ecological crisis, it is of paramount importance today to recognize the place and value of nature in direct relation to the divine reality and mystery. The process of humanization would be helped much more when Man tries to live out the mystery of God in the sacredness of nature, than when he projects this sacredness on to the 'profitable waste' he continues to produce in the technological and industrially advanced societies.

The non-Semitic religious traditions of the world, specially the other great world-religions in Asia, have perceived and lived the mystery of the Divine in intimate relationship to nature and this vision is a necessary complementarity to the Judeo-Christian tradition. If the Judeo-Christian tradition tends to the *humanization of the universe*, the other religious traditions tell us the way to the *universalization of Man*, namely the relationship of totality of reality in its divine and cosmic dimensions. Through this universalism Man becomes truly *catholic*, in the etymological sense of the term, that is *katolos*—comprising, embracing all, the totality. That leads us to a second direction in which the complementarity to the Biblical tradition should take place. It concerns the relationship of Man to nature.

The dominion of Man over nature expresses itself in the history-making process. Man breaks out of the realm of necessity and determinism of the nature and through the exercise of his freedom makes history and realizes himself. Part of this history and self-realization is his transformation of the nature and the use of its resources. The Judeo-Christian tradition as lived in the West has highlighted this concept of dominion which is very central to its anthropology. The history-making character of Man has been so much stretched and it has grown into monstrous proportions. The human subject and his/her freedom has today ended up in being dissolved into an objective

rationality which claims the allegiance of Man, or fritted away into the empirical and historical.

A salutary discomfiture and boredom has descended upon Man who is again in search of his real bearings and roots. It is a bad counsel to tell Man as is being done in the advanced industrial society today, that he should overcome this boredom and tiredness with history and proceed ahead, and that there is no return. There is a return, but not to the past of an untouched nature of paradisaical innocence, but a return, a conversion to the order of being of which nature is a part. The redemption from the disastrous prospects held out by the pervasive industrial and technological society is to learn to respect being, allow oneself to be taken hold of and gripped by it, and learn to walk in its light.

In short, the overcoming of the environmental crisis and the situation of oppression and injustice into which the two thirds of humanity is thrown cannot be effected when we move within the parameters of the historical and empirical and try to patch up things, but only when we are ready to transport ourselves into the horizon of being, to the ontic level. At this level we will perceive the cords of being with which we are united with nature and the divine mystery.

All this is not to deny the place of human freedom and the importance of history. I am only saying that the pathos with which the technological society is driven and the inspiration it has drawn from the Judeo-Christian tradition needs to be brought to a salvific balancing, by introducing into every realm of human living the ontic dimension or *sat*. The *cit* or consciousness, rationality should not be allowed to inundate the *sat* and wash it off. History should respect being and then only true *ananda* or bliss for all — even to the least is possible. Herein lies the importance of the complementarity which the non-Semitic religions can offer to the Judeo-Christian tradition in overcoming the present environmental and ecological crisis.

Conclusion

Let me make three brief practical conclusions corresponding to the three parts of the article.

Ecology is not an esoteric issue. It is a vital part of the question of social justice. Anyone concerned about social justice — and every Christian should be — cannot but involve himself or herself in the ecological questions — whether of the destruction of nature or the deprivation of

the poor from its resources. No Christian can extricate himself or herself from this responsibility inasmuch as action for justice is a constitutive part of the proclamation of the Gospel²³. Not only individual Christians, but the whole Church should be sensitized to the importance of ecological issues in our country. It offers a new and fresh avenue for the evangelizing mission of the Church, the laity, clergy and the religious.

Our involvement in ecology should not proceed simply out of technical considerations but must be born out of ethical and moral convictions. Ecological questions must be dealt with at the ethical level. The wider ethical issues connected with ecology, such as the model of humanizing development, control of power etc. offer us a point of dialogue and encounter with various forces working towards the preservation of the ecological balance and the securing of social justice. Christians should enter into ecological movements at macro and micro level. Besides, they should involve themselves in the work of inculcating the value of nature and our responsibility towards conservation of the environment.

The Judeo-Christian tradition complemented by traditions of other peoples and religions in Asia should lead us to a positive approach and appreciation of nature. It would entail a change in our attitudes and in our spirituality estranged from the reality of nature. Our spirituality should be one in which the divine mystery is experienced in our deep communion with nature. In this sense our concern and involvement in ecological questions can be a bridge or mediation between the two realms which tend today to get dichotomized and proceed on parallel lines—spirituality and commitment to justice.

Tiruchirappalli

Felix Wilfred

23. Synod of Bishops, *Justice in the World*, November 30, 1971, no.6 for the text, cfr. Joseph Gremillion (ed.), *The Gospel of Peace and Justice*, Orbis Books, Maryknoll, New York 1976, p.514.

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